

**DISTRICT OF COLUMBIA**

**THE OPERATIONS OF THE  
ENGINEER DEPARTMENT  
DISTRICT OF COLUMBIA**

**YEAR ENDED JUNE 30, 1927**



REPORT  
OF THE OPERATIONS OF THE  
ENGINEER DEPARTMENT  
OF THE DISTRICT OF COLUMBIA

FOR THE YEAR ENDED  
JUNE 30  
1927

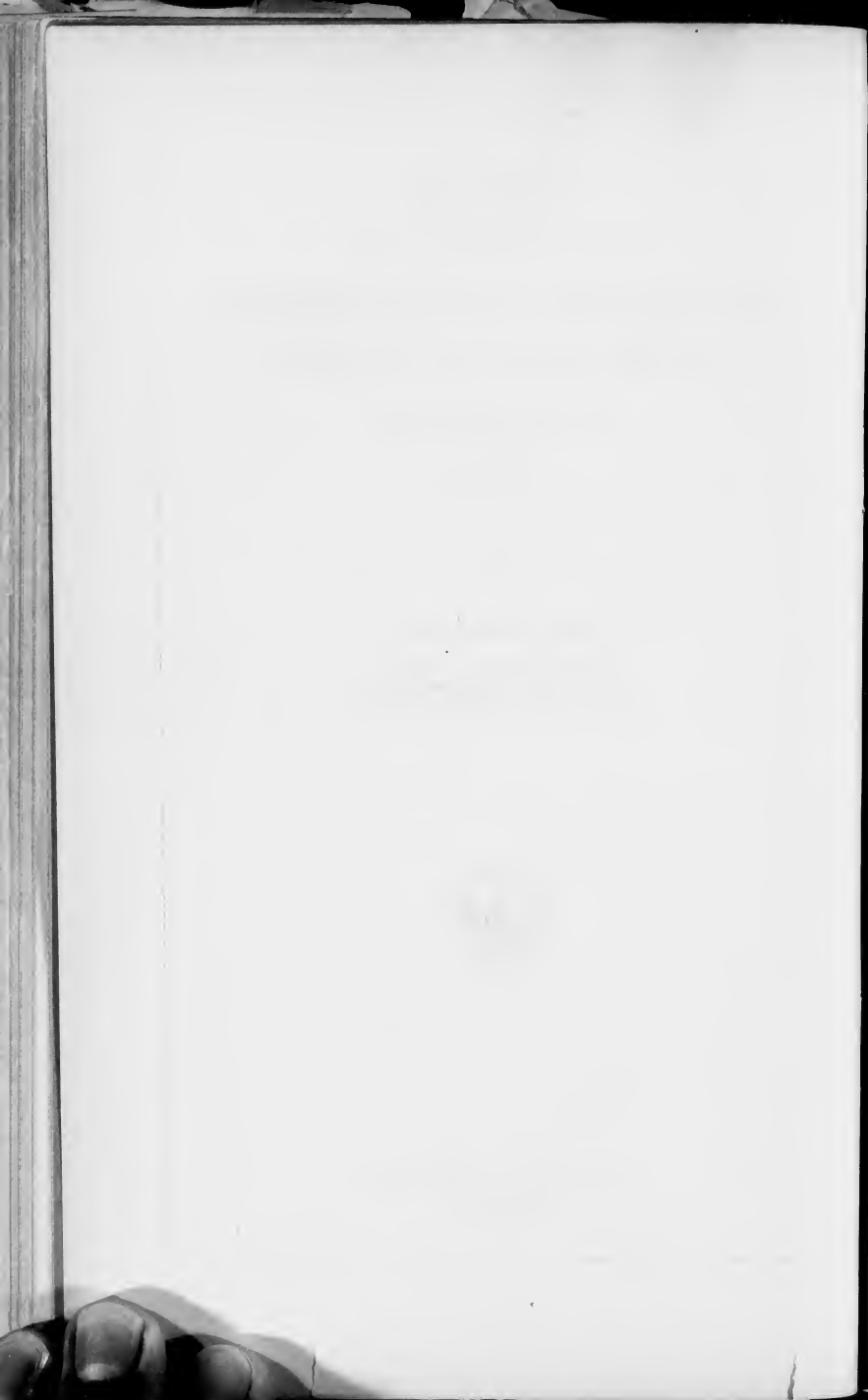
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UNDER THE DIRECTION OF  
LIEUT. COL. J. F. BELL  
Corps of Engineers, United States Army  
Engineer Commissioner, District of Columbia



UNITED STATES  
GOVERNMENT PRINTING OFFICE  
WASHINGTON

1927



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## ORGANIZATION OF THE ENGINEER DEPARTMENT, DISTRICT OF COLUMBIA

Lieut. Col. J. F. BELL, *Corps of Engineers, United States Army, Engineer Commissioner.*  
Maj. W. E. R. COVELL, *Corps of Engineers, United States Army, Assistant.*  
Maj. LAYSON E. ATKINS, *Corps of Engineers, United States Army, Assistant.*  
Capt. HERBERT C. WHITEHURST, *Corps of Engineers, United States Army, Assistant.*

### UNDER THE IMMEDIATE SUPERVISION OF THE ENGINEER COMMISSIONER

COLLECTION AND DISPOSAL OF CITY REFUSE; STREET AND ALLEY CLEANING:  
MORRIS HACKER, *Supervisor.*

CONTRACT BOARD:

ROLAND M. BRENNAN, *Chairman.*

DISTRICT BUILDING:

Maj. LAYSON E. ATKINS, *Superintendent.*

RECORD DIVISION:

ROLAND M. BRENNAN, *Chief Clerk.*

SEWER CONSTRUCTION AND MAINTENANCE:

J. B. GORDON, *Sanitary Engineer.*

WATER DISTRIBUTION AND REVENUES:

J. S. GARLAND, *Superintendent.*

E. H. GROVE, *Water Registrar.*

WHARF COMMITTEE:

ROLAND M. BRENNAN, *Chairman.*

D. E. MCCOMB, *Engineer of Bridges.*

H. R. LOHMAN, *Harbor Master.*

ZONING COMMISSION:

Maj. W. E. R. COVELL, *Executive Officer.*

### UNDER THE IMMEDIATE SUPERVISION OF MAJOR COVELL

BUILDING AND PLUMBING INSPECTION:

J. W. OEHMANN, *Inspector of Buildings.*

A. R. MCGONEGAL, *Inspector of Plumbing.*

Plumbing board—

LOUIS CONRADIS.

JAMES S. O'HAGAN.

SAMUEL TAPP.

Board of examiners, steam engineers—

E. F. VERMILLION.

H. BOESCH.

T. S. TINCER.

Permits, engineer department—

H. M. WOODWARD, *Permit Clerk.*

BOARD FOR CONDEMNATION OF INSANITARY BUILDINGS:

Maj. W. E. R. COVELL, *Assistant to the Engineer Commissioner.*

Dr. W. C. FOWLER, *Health Officer.*

J. W. OEHMANN, *Inspector of Buildings.*

ELECTRICAL DEPARTMENT:

WARREN B. HADLEY, *Electrical Engineer.*

ZONING.

### UNDER THE IMMEDIATE SUPERVISION OF MAJOR ATKINS

AUTOMOBILE BOARD.

CONSTRUCTION, MAINTENANCE, AND REPAIR OF MUNICIPAL BUILDINGS:

ALBERT L. HARRIS, *Municipal Architect.*

HENRY STOREY, *Superintendent of Repairs.*

DISTRICT BUILDING.

LAND PURCHASE OF.

PROPERTY MAINTENANCE AND UTILIZATION.

MOTOR TRANSPORT.

MUNICIPAL GARAGE—

E. F. BROOKE, *in Charge.*

CHARLES N. EMMONS, *Superintendent.*

### UNDER THE IMMEDIATE SUPERVISION OF CAPTAIN WHITEHURST

HIGHWAY CONSTRUCTION, MAINTENANCE, AND REPAIR (streets, roads, bridges, etc.):

C. B. HUNT, *Engineer of Highways.*

J. W. DARE, *Assistant Engineer of Highways.*

Construction and maintenance of suburban roads—

L. R. GRABILL, *Superintendent of Suburban Roads.*

Construction and maintenance of bridges—

D. E. MCCOMB, *Engineer of Bridges.*

Construction and maintenance of sidewalks and alleys—

H. N. MOSS, *Superintendent of Streets.*

Asphalts and cements—

V. CLEAVER, *Inspector of Asphalt and Cement.*

Repairs to cuts—

F. C. COUCH, *Inspector.*

SURVEYOR'S OFFICE (including street extensions):

M. C. HAZEN, *Surveyor.*

TREES AND PARKINGS:

CLIFFORD LANHAM, *Superintendent.*

# EXTRACT FROM REPORT OF THE COMMISSIONERS OF THE DISTRICT OF COLUMBIA FOR THE FISCAL YEAR ENDED JUNE 30, 1927

OFFICE OF THE COMMISSIONERS  
OF THE DISTRICT OF COLUMBIA,  
Washington, December 5, 1927.

*To the Senate and House of Representatives of the United States of  
America in Congress assembled:*

The Commissioners of the District of Columbia herewith submit for the information of Congress, pursuant to the requirements of section 12 of an act providing a permanent form of government for the District of Columbia, approved June 11, 1878 (20 U. S. Stats. 108), a report of the official doings of that government for the fiscal year ended June 30, 1927.

\* \* \* \* \*

## ROADWAY PAVEMENTS

The accompanying table shows the area in square yards of new roadway pavements laid and old roadway pavements resurfaced during the year, with the total in square yards and miles of the various kinds of pavements at the close of the fiscal year.

*Comparative statement showing character and extent of roadway pavements*

	Existing amount on June 30, 1926		New pavements laid during year (square yards)	Pave- ments replaced during year (square yards)	Existing amount on June 30, 1927	
	Square yards	Miles			Square yards	Miles
Sheet asphalt and coal tar.....	3, 529, 852	188. 08	37, 806	-----	3, 567, 658	190. 44
Asphalt block.....	602, 032	30. 56	-----	<sup>1</sup> 8, 041	593, 991	29. 94
Asphaltic surface (Bessonite).....	203, 990	13. 17	17, 896	-----	221, 886	14. 03
Durax block.....	31, 679	1. 13	-----	-----	31, 679	1. 13
Asphaltic or bituminous concrete:						
On concrete base.....	78, 708	4. 58	-----	<sup>1</sup> 2, 406	76, 302	4. 28
On stone base.....	38, 909	2. 16	-----	-----	38, 909	2. 16
Cement concrete.....	790, 632	42. 09	131, 872	<sup>2</sup> 6, 154	916, 350	49. 08
Granite block and rubble.....	260, 598	14. 77	-----	<sup>2</sup> 11, 742	248, 856	14. 25
Vitrified block.....	17, 390	1. 04	-----	-----	17, 390	1. 04
Cobble.....	36, 374	1. 52	-----	-----	36, 374	1. 52
Macadam (estimated).....	1, 615, 242	108. 35	-----	<sup>3</sup> 2, 647 <sup>1</sup> 13, 894	1, 598, 701	107. 41
Gravel and unimproved (traveled).....	-----	162. 80	-----	-----	-----	175. 32
Gutters on asphalt streets.....	251, 376	-----	2, 937	-----	254, 313	-----
Pavements maintained by street rail- ways.....	616, 807	-----	-----	-----	616, 807	-----
Gutters on asphaltic concrete streets.....	9, 847	-----	-----	124	9, 723	-----
Total.....	8, 083, 436	570. 25	190, 511	45, 008	8, 228, 939	590. 60

<sup>1</sup> Replaced with standard pavement.

<sup>2</sup> Replaced with asphaltic surface.

<sup>3</sup> Replaced with cement concrete.

## ROADWAY PAVEMENTS

The sums appropriated for expenditures under this head during the year were as follows:

For repairing old roadway pavements, including asphalt resurfacing.....	\$1,000,000
For paving new roadways.....	148,600
For repairs to suburban roads.....	295,000
For grading streets, alleys, and roads.....	50,000
For paving and repaving roadways under the gasoline-tax road and street fund.....	658,100

The prices paid under contracts for roadway pavements during the year were as follows:

Laying sheet asphalt pavement (2½-inch asphalt surface, 2-inch binder (before compression) with 6-inch concrete base).....	\$2.33, \$2.47, \$2.67
Laying vitrified block gutter with 6-inch concrete base.....	1.90, 2.00, 2.47
Laying 6-inch concrete roadway.....	1.78

The principal fields of activity in the year's construction work was the new roadway paving program and the resurfacing of old asphalt roadways. The latter activity was made possible by the recognition by Congress of the need of replacing at an early date a large area of such pavements which, due to their extreme age, were beyond the possibility of minor repairs.

## SUBURBAN ROADS

The continued increase in the number of automotive vehicles, and especially of heavy trucks, brings a constant addition to the cost of maintaining these roads in a fair condition. The area of roadways under maintenance is increased by natural growth faster than it is decreased by current provisions for their permanent paving.

## MUNICIPAL ASPHALT PLANT

During the year the municipal asphalt plant was operated for a period of 255¾ days, with a total output of 203,076 cubic feet of asphaltic material, or an average daily output of 794 cubic feet. The details of the cost of the operation of the plant are contained in the report of the engineer of highways.

## SIDEWALKS AND ALLEYS

Some reduction was evident in the demand for new sidewalk construction and, in a lesser degree, for new alley paving. The fund for paving alleys and sidewalks abutting private property amounted to \$300,000 and for sidewalks abutting Government property \$15,000. Cement concrete was used exclusively. The contract prices for sidewalks were \$2.16 and \$2.17 for those adjacent to paved roadways and \$2.26 and \$2.23 for those adjacent to unpaved roadways.

## BRIDGES

The expenditures for construction and repair of bridges amounted to \$39,904.91, and the appropriation for the maintenance of the Anacostia Highway and Key Bridges was expended in full. Highway



guards were installed on the Calvert Street, Pennsylvania Avenue SE., and Klinge Road Bridges. The Van Buren Street subway under the tracks of the Baltimore & Ohio Railroad was completed.

#### INSPECTION OF ASPHALTS AND CEMENTS

Through this office chemical and physical tests were made of engineer construction material, fuel oil, etc., to the total number of 11,505, of which 8,543 were Portland cement; covering, 139,770 barrels. The samples of asphalt tested covered 287,473 square yards of bituminous pavement.

#### SURVEYOR'S OFFICE

The work of the surveyor's office is divided into three classes:

1. Work performed for private parties, for which fees are charged as provided by order of the commissioners.
2. Work for various departments of the Federal and District Governments, for which no fees are charged.
3. Work done in connection with condemnation cases for the opening of streets and alleys and the acquisition of parks, school and playground sites, etc.

#### REVISION OF HIGHWAY PLAN

During the past fiscal year \$1,500 was appropriated for this purpose. Thirty-one cases were recorded, while during the preceding year only three were recorded. This shows the large increase in this class of work and indicates the importance of this appropriation for revision of the highway plan.

#### SURVEYS TO MARK ON THE GROUND THE PERMANENT SYSTEM OF HIGHWAYS

During the past fiscal year \$2,000 was appropriated for this purpose. This fund is used to mark on the ground the streets laid down on the plan of the permanent system of highways and for such changes in the plan as are made. A great amount of field work has been done in this connection during the past year, and the work will have to be continued in the future as streets are planned and development continues.

#### CONDEMNATION CASES

The preliminary work in connection with condemnation cases to be filed in court is performed by the surveyor's office. This work calls for expert engineering field surveys, accurate computation of lines, areas to be condemned, preparation of plats and descriptions, and expert testimony of engineers in court. Of 68 cases pending in court during the past year 16 were confirmed, 17 dismissed, and 35 are still pending. Damages awarded by the jury in cases confirmed amounted to \$142,739.97. In addition to the cases cited above, a great many cases have been ordered by the commissioners, but were not filed prior to the close of the fiscal year. All of these cases have been prepared by the surveyor's office, some of which were the largest condemnation cases ever attempted. The work has been completed by the surveyor's office and it only remains for the cases to be filed in court.

The widening of Conduit Road, Good Hope Road, and Alabama Avenue, and the condemnation of streets south of the Walter Reed General Hospital reservation are all very large cases and required months of study and work in the preparation of plats and descriptions. The condemnation of streets south of Walter Reed Hospital reservation is probably the largest condemnation case ever attempted by the District of Columbia, and the cost will probably exceed a million dollars.

During the year many condemnation cases were filed for the acquisition of streets in accordance with the highway plan which, heretofore, it would have been useless to attempt to condemn. This has been brought about by the enactment of an act of Congress which provides that in the condemnation of streets in accordance with the highway plan, where damages and costs exceed the benefits, that such excess may be paid out of the revenues of the District of Columbia.

#### CONDEMNATION OF SMALL PARK AREAS

An appropriation of \$12,500 was made during the past fiscal year for the purpose of acquiring small park areas at street intersections. More money should be appropriated for this purpose, as it is impossible, with such a small fund, to secure many of these important park sites. With such a small appropriation only about one case can be filed each year. There is always danger of improvements being erected which would prevent the acquisition of these park sites.

#### CLOSING OLD ROADS

Under the law authorizing the closing of any part of a street, road, or highway rendered useless or unnecessary by reason of the opening of other streets in accordance with the highway plan, upon the consent of all property owners abutting on the street or highway to be closed, many portions of roads and highways have been closed during the past year to permit of development by abutting property owners.

#### STREET EXTENSIONS

Fifty-four street-extension cases were recorded in this office during the past year. This includes all condemnation cases and dedications for the extension and widening of streets, and represents the number of plats showing these acquired streets actually recorded upon orders of the commissioners.

This report will show that, while there has been a decrease in certain classes of work by reason of decrease in building operations, other classes of work, such as street extensions, changes in the highway plan, zoning maps, etc., have been greater than the year previous, and this, with the enormous amount of work necessary on the large condemnation cases prepared, have kept the field and office force very busy during the past year.

#### TREES AND PARKING

The number of trees planted along the curbs on the streets in the District of Columbia at the close of the fiscal year was 105,123, a net increase of 427 trees. There are more trees on the streets of

Washington at this time than ever in the history of the city. During the fiscal year 2,093 young trees were planted in their permanent positions. The work of extending the tree system in the suburbs and hitherto unplanted localities resulted in 1,749 young trees being planted along many improved thoroughfares. The sum of \$16,406.34 was expended for labor and material to plant trees.

A total of 1,937 trees were removed from public space during the year for various reasons. A majority of these trees stood at the curb line.

The cost of removing 1,394 trees was paid from the appropriation for the trees and parking division at a total cost of \$7,488.42. The cost of other trees removed was paid from the appropriations of other departments and whole cost deposits.

During the year 12,973 trees were trimmed, at a total cost of \$11,759.01. The removal of broken limbs, trees, etc., from the streets caused by storms resulted in an expenditure of \$2,350.38.

Fifty-one thousand two hundred and thirty-three trees were sprayed for the extermination of leaf-eating insects, at a cost of \$3,672.85.

The sum of \$187.14 was expended in treating the cavities in 4 elm, 7 Norway maple, 7 silver maple, 2 sugar maple, and 1 linden tree that stood at the curb line.

The removal of weeds from uninclosed parkings and tree spaces was undertaken, at a cost of \$2,552.85.

The cultivation of 12,780 young trees involved the expenditure of \$2,382.75.

Our nurseries are well stocked with small trees of the varieties considered best for street planting. These nurseries have not been able to produce a sufficient number of trees of the proper size to keep pace with the growth of the city and its street improvements. Six hundred and twenty willow oak, 652 red oak, 195 pin oak, and 127 elm trees were transplanted at Fort Dupont nursery, and 776 linden, 473 pin oak, and 135 willow oak trees at the Poplar Point nursery. The sum of \$10,765.74 was expended on nursery work.

The height of 611 retaining walls was passed on, and 1,017 permits were issued affecting the grade of the parking in connection with building operations.

#### COLLECTION AND DISPOSAL OF CITY REFUSE

In the work of collection and disposal of refuse of the city a noteworthy feature was the amount of garbage collected. This was  $12\frac{1}{2}$  per cent greater than for the year before, but it was not so rich in fats, so that the amount of grease produced was slightly less than a year ago, and as the market for grease this year was poor the resulting revenue from the reduction plant was about \$70,000 less than for the previous year.

The cost of operation of the reduction plant which produced this grease was \$155,137.49. The revenue from the grease sold from this plant was \$182,468.26.

The revenue from salvaged trash sold was also less than a year ago, on account of the cheap price for paper.

The total receipts by this department from all sources were as follows:

Grease .....	\$182,468.26
Waste material.....	70,385.27
Dead animals.....	1,868.00
Manure.....	2,266.04

The quantity of ashes collected was within 1 per cent of that collected in the previous year.

The number of dead animals collected during the year was surprisingly large, totaling 47,064.

The appropriation of \$450,000 for cleaning permitted work to be done over a considerably greater area than had been done heretofore.

#### BUILDING OPERATIONS

The estimated value of building operations during the year was \$49,776,865, a decrease of \$13,822,415 as compared with the figure given for the fiscal year 1926 of \$63,599,280. Building operations for the fiscal year of 1926 were considered abnormal, and operations during the past fiscal year, \$49,776,865, as compared with the fiscal year of 1924, \$39,403,207, which is considered normal, shows an increase of \$10,373,658.

The number of permits issued was 10,798 as against 11,574 last year, an insignificant decrease of 776. Business buildings numbered 699, whereas there were 758 in 1926. The number of apartments was 109 as against 173, and that of dwellings was 2,477 as compared with 4,135 for the previous year. The total number of new buildings was 3,285 in 1927 as compared with 5,066 in 1923.

The number of permits for the erection of signs numbered 2,083, a decrease of only 115 compared with the figure given last year.

There were 2,888 triyearly inspections of elevators made by four inspectors during the past year as compared with 1,939 made by three during the fiscal year 1926, which shows an increase of 76 inspections per man. Checks totaling \$3,325 were received paying for 2,660 inspections as against \$2,295 and 1,836, respectively.

There were 2,871 certificates of occupancy issued, an increase of 269 compared with the figure of last year of 2,602. Of these certificates or permits 2,616 were for a conforming use, while 255 represented a nonconforming use.

The total number inspections of fire escapes, apartments, fire equipment, places of public assemblage and entertainment, etc., was 3,315, while the fees collected were \$2,474, an increase in the number of inspections of 1,045, with a decrease of \$67 in the amount of fees collected compared with the previous year.

The amount collected in fees from the operation of the building-inspection division was \$74,615.25, while the total expenditure of the department, including salaries, was \$103,410.38.

#### PLUMBING AND PLUMBING INSPECTIONS

The plumbing-inspection division made 62,799 inspections during the year, an increase of 8 per cent over the number of inspections made last year. About half of these inspections were made of

plumbing work in new buildings and about one-half were inspections on account of complaints of insanitary plumbing, leaking roofs, and defective rain leaders.

The plumbing board held 24 meetings and examined 82 applicants, of whom 23 passed and were granted licenses. At the close of the year there were 283 licensed master plumbers, 247 of whom were actively carrying on business. There are also 5 registered gas fitters.

#### PUBLIC CONVENIENCE STATIONS

Four public convenience stations were in operation throughout the year. The attendants reported a total patronage for all stations of nearly 16,500,000. The cash receipts from the use of pay compartments, etc., amounted to \$6,437.37, nearly one-fourth of the cost of operating the four stations, namely, \$28,000. Plans have been prepared for a new convenience station at the northeast corner of Ninth and F Streets NW. Facilities of this kind are badly needed in the vicinity of Fifteenth Street and New York Avenue, Wisconsin Avenue and M Street, Good Hope Road and Nichols Avenue SE., Seventh Street and Florida Avenue NW., and Fourteenth Street and Park Road NW.

#### INSPECTION OF STEAM BOILERS

Four hundred and seventy-nine steam boilers were inspected by the inspector of steam boilers, including 30 boilers, belonging to the District of Columbia. Five boilers were condemned as unfit for use. The compensation of the inspector of steam boilers is paid from the fees collected from the owners. No fees were received for inspecting boilers owned by the District of Columbia. The total amount of the fees reported was \$2,095 and the expenses of inspection \$380, leaving a net compensation of \$1,715 for the inspector.

#### EXAMINATION OF STEAM ENGINEERS

The board of examiners of steam engineers held 52 meetings and examined 242 applicants, of whom 127 were found competent and 115 incompetent.

#### CONDEMNATION OF INSANITARY BUILDINGS

During the past fiscal year the board for condemnation of insanitary buildings held 14 meetings and served 125 condemnation orders. Six hundred and forty-nine buildings were examined, of which 245 were condemned, 218 razed, 211 repaired, while on 133 no action was taken. Condemnation proceedings are pending in 27 cases. Twenty condemned buildings remained standing because of lack of funds for their demolition.

Repairs to an estimated value of \$93,477 were made, and approximately 2,500 people were benefited by such repairs. Nine hundred and eighty residents of condemned buildings were required to secure other living quarters.

## CONSTRUCTION OF MUNICIPAL BUILDINGS.

During the year 23 buildings were under construction, as follows: Francis Junior High School, which was completed January 29, 1927; Randall Junior High School, 8-room addition to the Cardozo School, including gymnasium and assembly hall, which was completed January 28, 1927; Stuart Junior High School, with a combined assembly hall and gymnasium, which was completed February 24, 1927; MacFarland Junior High School, wing addition, which was completed March 10, 1927; John Greenleaf Whittier School, 8-room extensible building, which was completed October 1, 1926; Job Barnard School, 8-room building, which was completed October 1, 1926; city refuse division stable, alterations, which were completed November 29, 1926; George Truesdell School, 8-room addition, which was completed October 1, 1926; McKinley Technical High School, including auditorium, gymnasium, and power house, which will be completed June 1, 1928; McKinley Technical High School retaining walls, which were completed April 1, 1927; McKinley Technical High School, additional retaining walls, which will be completed October 1, 1927; Hine Junior High School, addition, which was completed April 25, 1927; district jail building, addition, and rearrangement of the interior construction of the east wing of the old jail building, which will be completed August 13, 1927; John Burroughs School, 8-room addition, including a combined gymnasium and assembly hall, and including the necessary remodeling of the old building, which will be completed August 12, 1927; fire department repair shop, addition, which was completed March 13, 1927; Woodridge School, 8-room extensible building, which will be completed August 10, 1927; police station No. 14, which was completed May 28, 1927; Langley Junior High School, addition, including an assembly hall and gymnasium, which will be completed January 15, 1928; Gallinger Municipal Hospital, which will be completed May 1, 1929; bird house, which will be completed January 1, 1928; Petworth School, addition of gymnasium and assembly hall, which will be completed January 1, 1928; West School, addition of gymnasium and assembly hall, which will be completed January 1, 1928; Bruce School, 8-room addition, which will be completed August 1, 1927; Smothers School, 4-room addition, including the necessary remodeling of old building, which will be completed January 15, 1928; District Training School, construction of a combined power plant and laundry, driving of 136-foot well, construction of a pump house, and erection of a 50,000-gallon steel water tank.

Besides the preparation of plans and specifications for the above-mentioned buildings, plans and specifications for over 50 other pieces of work, such as alterations and repairs to buildings, heating, plumbing, and electrical work, for the various buildings were prepared in this office, amounting to \$220,031.

The contracts entered into by this office during the fiscal year beginning July 1, 1926, and ending June 30, 1927, amounted to a total of \$2,400,674.

## REPAIRS TO MUNICIPAL BUILDINGS

All municipal buildings are kept in repair under the direction of the municipal architect.

The appropriations for repair work and the expenditures of same were as follows:

For the repairs and improvements to school buildings and grounds, \$550,000 was appropriated, all of which was expended.

For repairs and improvements to engine houses and grounds, \$28,000 was appropriated, all of which was expended except \$198.92.

For repairs and improvements to police stations and station grounds, \$9,000 was appropriated, all of which was expended except \$215.94.

For repairs and alterations to police court building, \$2,500 was appropriated, all of which was expended except \$411.34.

For the installation of toilet and bathing facilities in houses of the fire department, \$20,000 was appropriated, all of which was expended except \$15.15.

For the installation of a heating plant in the District repair shop, \$1,500 was appropriated, all of which was expended except \$217.24.

In addition to the above, repairs were made on various buildings under the supervision of the superintendent of repairs to the amount of \$46,168.52 out of the appropriations controlled by other departments.

Steam boilers in over 100 District buildings were inspected and repaired.

## WORKHOUSE AND REFORMATORY

The principal work done at the workhouse consisted of work on 3 dormitories, 2 of which were completed and ready for occupancy; 1 isolation building, 60 per cent complete; industrial railroad, near completion; addition to brick plant, construction of canning factory, automobile-license plate shop, and foundry.

The principal work done at the reformatory consisted of 3 dormitories, concrete floors, and plumbing fixtures put in; 2 dormitories, brickwork and roof completed; 1 dormitory, brickwork 25 per cent complete; roadwalk and roof connecting dormitory, completed; 1 mess hall, 1 clothing shop, 1 auto tag shop, 1 foundry building, and 1 canning factory building.

## HARBOR FRONT

The actual frontage of the District of Columbia devoted to commerce, with the exception of canals, is about 2 miles. The total available water front is 18 miles, of which about 8 miles is set aside for parks and other purposes of the United States. The greater part of the wharf property under the control of the commissioners is situated along the Washington Channel.

The harbor police station and dock, the dock of the fire boat, the District Morgue, the municipal fish wharves and market, and the District workhouse and sand wharves are located on the Washington Channel between N and Thirteenth Streets. The balance of the frontage is leased by steamboat companies, boathouses, lumber dealers, etc.

The total revenue from wharf rentals, including the fish market, amounted to \$34,558.45.

Repairs were made to certain wharves at a total cost of \$11,575.68.

The report prepared by the United States Engineer Office relating to the general development and improvement of the water front along the Washington Channel has been completed and will probably be transmitted to Congress in December of this year. As many of the wharves are in an advanced stage of deterioration, the hope is expressed that this project may be approved and funds appropriated for beginning the work at an early date.

#### DISTRICT BUILDING

In addition to the usual care of the District Building, numerous rooms were reassigned and many alterations made in order to relieve congestion. Necessary repairs were made to the mechanical equipment by the personnel of the power plant, including plumbing throughout the building, Fairbanks scales, and the track leading from the coal vaults to the boilers, high-pressure steam main, boiler-feed pumps, etc. Commutators and generators were repaired at a cost of \$246.79.

Two thousand two hundred and six and nine-tenths tons of coal, ranging in price from \$5.38 to \$6.48 per ton, were consumed. The percentage of ash was 14.47.

The heating system was in operation 4,920 hours, the ventilating system 1,280 hours, the pneumatic tube system 2,178 hours, and the water-cooling system 2,666 hours. The total number of kilowatt-hours generated was 533,840.

The elevators were repaired and kept in operation, although attention is again called to the worn condition of the six passenger elevators.

Walls and ceilings were painted at a cost of \$2,939.06.

#### MUNICIPAL GARAGE

Fifty automobiles were maintained and kept in running condition for the various departments of the District of Columbia. The labor and mechanical forces were engaged in repairing automobiles, carrying mail, and driving for departments without automobiles or drivers, and greasing, oiling, and washing cars at night. The automobile repair shop is operated in connection with this garage, which shop is located at Second and Bryant Streets NW., where all repair work is done for the water and sewer departments, District of Columbia repair shop, board of public welfare, and others.

Operating cost for maintenance of 50 automobiles, including gasoline, oil, tires, labor, and miscellaneous supplies, amounted to \$21,203.48, or an average of \$424.07 per car, or \$0.0492 per mile. Repair parts used in cars cost \$3,452.98, an average of \$69.06 per car, or \$0.0132 per mile. The mileage of the 50 automobiles totaled 311,184, or 6,223 miles per car.

#### STREET LIGHTING

There are 24,973 public lamps of all kinds in the avenues, streets, alleys, etc., under the jurisdiction of the Commissioners of the Dis-



trict of Columbia. Of these, 11,136 are gas and 13,837 electric; of the gas lamps, 10,040 are single-burner mantle, 773 are double-burner mantle, and 323 are small flat flame, for designation purposes; of the electric 906 are magnetite arc, 12,615 are incandescent, ranging from 60 to 1,000 candlepower each (57 per cent of 60 and 100), and 316 are incandescent of about 10 candlepower, for "designation."

There was a net increase during the year of 1,587 lamps.

The increase in aggregate candlepower of the street-lighting system under the jurisdiction of the commissioners is from approximately 2,844,000 to approximately 4,368,000, about 53 per cent. The increase in annual charges is, however, less than 25 per cent.

The approved project of improved lighting has been carried well forward, limited as yet, in general, to main traffic arteries and to streets about to be repaved. The resulting improvement of visibility is a certain comfort to those using the streets at night and, it is believed, contributes to decrease of hazard to life, limb, and property, as well as contributing to the beautification of the city. Newly designed posts, following, with the cordial indorsement of the Commission of Fine Arts, the lines of the "Millet" post, designed for Washington and in use since 1911, have been produced, giving a greater mounting height to the lamp and better comporting with the dimensions of the larger lamp units. All old posts displaced are salvaged, fitted with an extension piece to increase mounting height, and reinstalled elsewhere. The optical effect of the increased mounting height, with the larger lighting units, and the more efficient glassware thereby rendered practicable, results in material increase of visibility at materially less rate of increase of cost—economical improvement.

Of 6.6-ampere arc lamps, the number in service was increased by 86, and of 4-ampere arc lamps, reduced by 72. New arc-lamp installations are at M Street NW. from Twenty-seventh to Thirty-sixth Streets and adjacent portion of Wisconsin Avenue; E Street NW. from Fifth to Thirteenth Streets; and on Eleventh Street NW. from Pennsylvania Avenue to G Street. This type of lamp is strikingly effective and, while not pleasing in all situations, the color value of its light, contrasting with that of show windows, gives a better general effect, both æsthetic and practical, than the incandescent street lamp in chosen situations. It has the highest commercial efficiency.

Of incandescent lamps of 1,000 candlepower, 600 candlepower, 400 candlepower, and 250 candlepower, combined, the number in service was increased by 3,655; of 100 candlepower and 60 candlepower decreased by 1,193; net increase, 2,462. Among the prominent items of the new incandescent lighting are (a) the extension of last year's new lighting of Massachusetts Avenue from Wisconsin Avenue west to the District line, and from Seventh Street NW. east to Nineteenth Street SE., including Stanton and Lincoln Squares, the extremes being treated fractionally to an appropriate degree under present conditions; (b) Connecticut Avenue, entire, including Farragut Square and Dupont Circle, except bridge over Rock Creek, lamps being on ornamental posts to the bridge and on trolley poles at curbs, thence to District line; (c) Rhode Island Avenue, entire, including Iowa Circle, on ornamental posts east to Fourth Street NE., thence

on center trolley poles; these examples are indicative of the comprehensive manner in which arteries of traffic are being treated, suiting the treatment to existing and early prospective civic and physical conditions.

Of the mantle gas lamps the number of single burner in service was decreased by 771, and of double burner decreased by 136. While existing condition of distribution systems necessitates occasionally the new installation of a few gas lamps, the reduction of gas street lighting is well begun, the reduction in the past year having been nearly double the recent yearly average increase.

Of the designation lamps in service there was a net increase of 18. These lamps are used mostly to maintain a red light on post bearing a fire-alarm box.

The claims against certain railway companies for payment of street-lighting charges, in accordance with law, seems on the way to early settlement out of court.

#### SIGNALS SYSTEM—FIRE-ALARM, POLICE-PATROL, AND TELEPHONE SERVICES

There were 915 fire-alarm boxes in service at the end of the year, 778 on underground and 137 on overhead wires, a net increase of 38 over the preceding year; 3,467 box and local fire alarms (exclusive of "additional" alarms) were received and transmitted during the year, of which 379, a highly excessive number, were false alarms.

There were 518 police-patrol boxes in service at the end of the year, 422 on underground and 96 on overhead wires, an increase of 9 compared with the preceding year; 7 boxes were changed from overhead to underground connection.

There were 1,796 telephones connected to the District system at the end of the year and 29 in use as portable sets by fire and electrical departments, an increase of 68 in the year.

There were 2,692 cells of storage battery in service on fire-alarm, police-patrol, and local circuits at the end of the year.

There were in service in the composite signals system (fire-alarm, police-patrol, and telephone) on June 30, 1927, a grand total of 8,257 miles of conductor, of which 8,067 miles were underground and 190 miles overhead. Reserve capacity of cable is below requirement of demand and below safe emergency provision. Provision for expansion is again presented as an urgent requirement.

#### REGULATION OF ELECTRIC WIRING

The number of permits issued for installation of electrical wires and apparatus was 14,144; fees paid to collector of taxes, \$24,372.55; number of inspections recorded, 29,793.

#### SEWERAGE AND SEWAGE-DISPOSAL SYSTEMS

The construction and maintenance of the sewerage system and the sewage-disposal system of the District of Columbia is placed under a division in charge of the sanitary engineer.

The length of sewers constructed during the year was 26.91 miles. Including the sewage-disposal system, the total length of main and pipe sewers on June 30, 1927, was 908.49 miles, of which 205.72 miles

were main sewers and 702.76 were pipe sewers. In addition to the above, 375 storm-water catch basins were constructed during the year, bringing the total to 6,864.

There was expended during the year on new extensions of the sewerage system the sum of \$1,088,869.52 and on the sewage-disposal system \$85,440.93. The total cost of the sewerage system to June 30, 1927, was \$19,181,762.99 and of the sewage-disposal system to the same date was \$6,237,292.60, making a total of \$25,419,055.59.

A new automatically controlled subpumping station was built on Earle Place, just west of Bladensburg Road, to take care of a 12-acre drainage pocket between Bladensburg Road and the Baltimore & Ohio Railway, and was put in service on April 18, 1927.

The main sewerage pumping station and three substations were in continuous operation throughout the year, and Earle Place substation, since it was put in operation, handling the sewage of practically the entire District and a small amount from Maryland. In addition the main station handled the storm water from the 900-acre, low-level area flanking Pennsylvania Avenue from Peace Monument to Fifteenth Street. At the main station the combined pumpage of sewage and storm water amounted to 30,739,006,000 gallons during the year. The Poplar Point substation pumped 700,194,496 gallons; Rock Creek substation, 473,243,000 gallons; Woodridge substation, 13,361,500 gallons; and Earle Place substation (pumping 74 days), 115,731 gallons. Eliminating the last three substations, which deliver their discharge to the main station, the above indicates a mean daily pumpage of 86,134,796 gallons. The coal consumption at the main station for the year was 4,589 tons, of which about 14 per cent should be charged off to bunker losses and miscellaneous uses.

Under the agreement of June 3, 1924, between the Commissioners of the District of Columbia and the Washington Suburban Sanitary Commission of Maryland, providing for the connection of their respective sewerage systems, a District sewer was advanced to the Maryland State line at Sixty-first Street NE. and a Maryland sewer was connected thereto. During the fiscal year the total net revenue to the District on account of handling Maryland sewage amounted to \$33.92.

In line with recommendations made by the Bureau of Mines, after an investigation requested by the commissioners, a number of changes have been made in the steam-generating plant at the main station. The furnace space of two boilers has been increased about 45 per cent by moving forward the front walls of the furnaces, and necessary equipment has been purchased to make similar changes in the four remaining boilers. A new economizer is being installed and a water softener has been purchased. Stationary soot blowers were installed on the six boilers to replace the old and inefficient hand blowers.

The pollution of the Potomac River by discharge of raw sewage was less than for a number of previous years, due to the increased average flow of the river during the year.

One thousand one hundred and fifty-three houses were provided with service sewers, the length of sewer constructed averaging 98 feet per house. This is some 30 feet more per house than required the previous year.

## WATER MAINS

During the year 126,121 linear feet, or 23.88 miles of water main of various sizes, were laid, at an aggregate cost of \$430,506.11, making a total length of main now in service of 753.77 miles.

## WATER CONSUMPTION

The mean daily water consumption was 68,721,450 gallons, giving an approximate mean daily per capita consumption of 137 gallons.

Total pumpage for the year was 14,822,468,784 gallons.

Total coal burned was 10,023 tons.

The cost of operating pumps for the year was \$121,871.33 as against \$122,204.97 in 1926, thus making the total operative cost of pumping 1,000,000 gallons of water into the mains \$8.20, which is \$0.30 per million gallons less than last year.

The financial statement of the water department revenues and expenditures will be found in the report of the auditor of the District of Columbia.

## WATER METERS

During the year 3,334 new meters were installed, and 78,644, or 85.3 per cent of the total water services are now metered.

PROCTOR L. DOUGHERTY,

SIDNEY F. TALIAFERRO,

WILLIAM B. LADUE,

*Commissioners of the District of Columbia.*

## REPORT OF THE SUPERINTENDENT OF THE WATER DEPARTMENT

WASHINGTON, D. C., *August 23, 1927.*

SIR: The annual report of the activities of the water department for the fiscal year ended June 30, 1927, is submitted herewith. Detailed reports of the various subdivision heads can be found on file in this office and because of limited space could not be included in this report.

The total length of cast-iron water mains of various sizes laid during the fiscal year is 126,121 linear feet, or 23.88 miles, an increase over last year's work of one-half mile.

Total length of water mains in the system of all sizes is 753.77 miles.

The mean daily water consumption for the year was 68,721,450 gallons, which showed a mean daily per capita consumption of approximately 137 gallons. The total pumpage for the year was 14,822,468,784 gallons as compared with 14,302,698,765 gallons last year.

Important work toward extensions consisted of laying trunk water mains aggregating about 4.3 miles in length, details of which will be found under report of engineering and construction.

The cleaning of reservoirs was carried out as usual.

The first high-water service of Anacostia was extended to include areas along Deane Avenue NE. and adjacent streets to the District line. This was made possible by the laying of 16-inch water main in Kenilworth Avenue from Benning Road to the viaduct at Deane Avenue NE., which enables a separation of the gravity and first high Anacostia services at this point, leaving Kenilworth and immediate territory on the gravity service. Higher areas are now adequately supplied, both for fire protection and domestic use.

Total operative cost required in pumping 1,000,000 gallons of water into the water mains amounted to \$8.20, which is \$0.30 per million gallons less than in 1925 and 1926.

Total cost of operating storeroom and yards for the year was 3.424 per cent of the value of material plus value of equipment disposed of.

Throughout the several branches of the office forces there has been a heavy increase in work performed with no increase in personnel.

J. S. GARLAND,  
*Superintendent Water Department.*

To the ENGINEER COMMISSIONER.

### DISTRIBUTION BRANCH—ENGINEERING AND CONSTRUCTION

The most important work of the year was the laying of the following trunk water mains which were authorized by act of Congress:

A 16-inch trunk water main in Sixteenth Street NW. from Euclid to Meridian Streets; Euclid Street from Sixteenth Street to Columbia

Road, Columbia Road from Seventeenth to Eighteenth Streets, a total distance of 5,442 feet. The completion of this main insures to a section built up with large apartment buildings, large churches, and residences a much-needed reinforcement for both domestic service and fire protection. Heretofore 12-inch mains have supplied this large territory. They are now connected with the new main.

A 16-inch trunk water main in H Street from Eighth to Thirteenth Streets NW., a total distance of 1,780 feet. This completes a trunk main begun last year at Sixth and I Streets NW., where a connection was made off a 48-inch trunk-line main in Sixth Street. All fire hydrants and service mains were connected directly to this trunk main through its entire length, thereby providing a much-needed reinforcement for both fire and domestic service to a large portion of the business section of the city.

Projects originating in the water department aggregating 18,141 linear feet of 16-inch water mains were laid as follows:

Sheridan Street east of Fifth Street NW. This main will shortly be extended south in North Dakota Avenue to connect to the present dead end of 16-inch main in North Capitol Street, thus forming a trunk-line loop to serve a rapidly growing section of the city.

Otis Street between Fifteenth and Twentieth Streets NE. This main serves both as a trunk and service main.

Concord Avenue between Fourth and Fifth Streets NW. This main is a portion of a connecting line between Georgia Avenue and North Capitol Street and will act as a trunk and service main through a residential section.

Firth Sterling Avenue from Howard Road to Stevens Avenue SE. Bolling Field will be better protected against fire by the laying of this main, which will also act as a feeder for smaller mains.

Kenilworth Avenue from Benning Road to the viaduct at Deane Avenue NE.

To extend the first high Anacostia service through Deanewood to the District line, to provide sufficient pressure at high elevations, it was necessary to lay this main to continue to supply the gravity service through Kenilworth to the District line.

In several streets in Georgetown old 4-inch mains have been replaced by 8 and 12 inch mains for the betterment of the service as well as to insure a sufficient supply for fire protection and domestic service, done under special sum appropriated for work of this nature.

At Seventeenth and Taylor Streets NW. the 42-inch United States Government main was connected with the 36-inch second high service main. This is the first connecting link between the increased water-supply system now nearing completion and the present distribution system.

#### *Miscellaneous drafting*

Miscellaneous drawings and tracings made-----	276
Projects made-----	252
Engineers' notes posted and checked on 50, 100, and 300 foot scale maps and tracings-----	3, 280
Intersection cards made-----	334
Intersection cards posted and checked-----	1, 175
Cards forwarded to assessor-----	523
Green connection cards made for registrar-----	57

Communications written-----	365
Reports written-----	340
Total-----	705
Permits passed-----	1,958
Locations of water mains given out-----	2,520
Water pressures computed and given out-----	281
Estimates made-----	397

Posted daily, 50, 100, and 300 foot scale water-main maps and map tracings; posted daily, the work in progress; worked on cards showing mains, valve, etc., at street intersections; worked on valve index; passed schedules of work to be done under the commissioners' orders; passed schedules of work to be done by the surface department; passed permits for terraces, copings, and driveways; miscellaneous lettering, estimates, reports, and general office work.

## STEAM ENGINEERING

The following is a summary of the work done at the district pumping station for the year:

Water pumped, figured from plunger displacement:	
First high service-----gallons--	8,012,601,784
Second high service-----do-----	4,460,846,000
Third high service-----do-----	2,349,021,000
Total-----do-----	14,822,468,784
<hr/>	
Coal burned-----tons--	10,023
Cylinder oil used-----gallons--	930
Engine oil used-----do-----	1,307
Crank-case oil used-----do-----	233
Filtered oil used-----do-----	680
Turbine oil used-----do-----	739
Grease used-----pounds--	726
Waste used-----do-----	685

For the fourth high service the water is pumped from Reno Reservoir, which is supplied by the third high-service pumps, to an elevated tank by motor-driven centrifugal units and gas engines. This machinery is operated daily by three enginemen, who work on eight-hour shifts. The water pumped for this service during the year was 204,347,716 gallons, or a mean of 559,857 gallons daily.

The Anacostia pumping station has been operated without interruption during the year, pumping to the three towers supplying the area east of the Anacostia River. This station is taken care of by four enginemen, who work on eight-hour shifts. The water pumped for this service during the year was 256,611,518 gallons, or a mean of 703,045 gallons daily.

The total pumpage for the year at the District pumping station was 519,770,019 gallons more than in 1925-26. The greatest amount pumped in one day, August 13, was 50,026,620 gallons; least one day, April 9, was 35,438,730 gallons, and the average dynamic head against pumps was 152.95 feet. The total operating expenses (excluding overhead) chargeable to pumping was \$121,871.33 against \$122,204.07 in 1925-26, making the total operative cost (excluding overhead) of pumping 1,000,000 gallons of water into the mains \$8.20, which is \$0.30 per million gallons less than in 1925-26. The aver-

age cost of coal per ton for the year was \$5.75, which is \$0.01 less than in 1925-26.

The station duty for the year was 86,463,994 foot-pounds per 100 pounds of coal. This is 3.73 per cent more than the duty obtaining during 1925-26 and represents an annual saving of approximately 179 gross tons of coal. This annual saving may be attributed partly to the increased work done by the high-duty pumps and partly (mainly) to operating the centrifugal units under capacity conditions.

Especially important work done during the year includes the installation of a 12-inch connection in pipe vault between the second and third high services and the installation, about January 15, of a new rotor and enlarged impeller on No. 3 unit, which increased the capacity of same from 15 to 17.5 million gallons per day.

The activity of the various shops continued as usual.

#### WATER SURVEY

The water-survey division retained the same organization during the year 1926-27 as for the previous year, investigating and disposing of all complaints, such as low pressure, leaks and waste, water in cellars and basements, and excessive pressures. The character and number of such complaints is a part of the office record. In general, the work was carried on by two divisions of the force, to one of which was assigned all technical work and work calling for lengthy investigation, while the other was assigned the balance of the complaints. These two forces necessarily overlapped in their activities due to the variation in the amount of work to be done from time to time.

Routine work of the division included the investigation and disposition of 7,609 complaints and the repair of 808 leaking joints on cast-iron mains and repair of 69 broken mains.

Various projects were prepared for improvements to the water system, including enlargement of the fourth high service system, increased pressure for the eastern section of the third high service; also investigations were made of fire lines and fire-line meters, cleaning of 41,463 feet of water mains, abandonment of old unused taps and meters, and miscellaneous small construction jobs.

Pumping equipment for leaks, cellars, etc., was maintained and operated, and Reno and Brightwood Reservoirs were chlorinated as needed.

Water-survey shop was maintained on part-time basis, caring for all technical equipment. Experimental work was carried on, resulting in improvements of lead furnaces and refinement of flow meters.

Blue prints for this and other divisions were taken care of during the year by detail of field men to that work as needed.

#### STOREKEEPING

Cost of operating storerooms and storage yards for the year was 3.424 per cent of the value of material issued plus value of equipment disposed of. A comparison of the percentages of cost of operating the storerooms and storage yards for the past 13 years shows: From 4.676 per cent in 1915 to 3.424 per cent in 1927.



The values of material and equipment which were received and issued during the year were as follows: Material—receipts, \$606,213.38; issues, \$585,824.16. Equipment—receipts, \$19,121.52; issues, \$15,544.08.

The value of material on hand at the close of the year was \$220,054.32, and the value of equipment in stock and in service at the close of the year was \$704,145.21.

#### TRANSPORTATION

The transportation equipment at this time is composed of 50 automobile trucks and passenger cars, ranging in capacity from a two-passenger car to a  $5\frac{1}{2}$ -ton truck. The total number of trucks has not been increased during the year, but seven old trucks were traded in as part payment for seven new trucks.

The following transportation was furnished to the various subdivisions daily throughout the year: Construction forces, 21 trucks and 9 drivers; engineer division, 4 trucks and 3 drivers; leak repair force, 2 trucks; valve division, 3 trucks; construction foreman, 1 truck; fire-hydrant division, 2 trucks; revenue division, 5 trucks; water-survey division, 6 trucks; pump division, 1 truck; superintendent, 1 sedan.

For use by the construction forces and for storage in our property yards we hauled during the year 34,997,700 pounds of material—about 17,498 tons. From construction jobs we hauled to the dumps 2,125 loads of dirt—about 7,438 cubic yards. And we hauled from the pumping station to various jobs and dumps 423 loads of ashes—about 1,480 cubic yards.

The revenue from our trucks which were engaged on general hauling during the year amounted to \$33,153.15. The cost of maintenance and operation of these trucks during this period amounted to \$29,738.59. Particular attention is invited to the cost of operating the storerooms and storage yards and to the financial condition of the general hauling account.

#### REVENUE AND INSPECTION BRANCH

##### WATER RATES

In accordance with an act of Congress approved May 10 and July 3, 1926, the rates for water were increased as follows:

The rate for domestic purposes shall be charged according to stories and front feet. On all tenements two stories high or less with front width of 16 feet or less, \$7.03 per annum, in advance. For each additional front foot or fraction thereof greater than one-half, 44 cents. For each additional story or part thereof, one-third of the charges as computed above.

Business premises are rated according to their size, class, volume of business, and water facilities, and rate from \$1.41 to \$25. If the flat rate on business establishments reaches \$25 or more the owner or occupant is required to install a water meter at his own expense.

A minimum rate of \$6.36 will be charged against all consumers supplied with water through meters, which allows the use of 7,500

cubic feet of water during the year; water used in excess thereof will be charged for at the rate of 6 cents per 100 cubic feet.

### 1. Statement of collections

Water rents:	
Flat rate-----	\$133, 161. 05
Meters-----	1, 146, 504. 24
Building purposes-----	6, 360. 61
Total-----	1, 286, 025. 90
Water-main tax, principal and interest-----	164, 592. 58
Miscellaneous receipts-----	1, 219. 24
	1, 451, 837. 72
Taps and stopcocks-----	17, 271. 11

### 2. Statement of cash receipts of the water-rent fund for the fiscal years from June 30, 1923, to June 30, 1927

Year	Water rents	Water-main tax, principal and interest	Miscellaneous receipts
1923-----	\$975, 305. 29	\$132, 372. 29	\$959. 21
1924-----	1, 035, 858. 89	109, 843. 31	619. 72
1925-----	1, 023, 603. 98	141, 089. 86	935. 42
1926-----	1, 052, 330. 56	176, 799. 22	1, 142. 99
1927-----	1, 286, 025. 90	164, 592. 58	1, 219. 24
Total-----	5, 373, 124. 62	724, 697. 26	4, 876. 58
1928 <sup>1</sup> -----	1, 283, 000. 00	175, 000. 00	1, 000. 00
1929 <sup>1</sup> -----	1, 302, 000. 00	175, 000. 00	1, 000. 00

<sup>1</sup> Estimated.

### 3. General information.

Consumption of water through meters:	Cubic feet
District meters-----	678, 000, 000
District meters, municipal buildings-----	102, 500, 000
Private meters-----	962, 000, 000
Private meters, charitable institutions-----	15, 300, 000
Total-----	1, 757, 800, 000

Meters in service	In use June 30, 1926	Installed, 1927	Abandoned, 1927	Total in use June 30, 1927
District meters-----	70, 897	2, 349	86	73, 160
District meters, municipal buildings-----	284			284
Private meters-----	4, 168	388	50	4, 506
Private meters, charitable institutions-----	212	2	2	212
Private meters, fire service, etc.-----	482			482
Total-----	76, 043	2, 739	138	78, 644

Average cost of reading meters-----	\$0. 156
Average cost, computing and making bills-----	. 233
Average payment for premises in which meters were installed (District meters only)-----	7. 68
Average payment (flat-rate accounts)-----	9. 65

## Premises receiving an allowance of free water:

Number of institutions.....	187
Number of meters.....	212
Cubic feet of water consumed.....	15, 300, 000
Allowance of free water.....	31, 873, 628
Number of institutions exceeding allowance.....	13

## Water services:

In use June 30, 1926.....	88, 139
Installed, 1927.....	3, 334
Total.....	91, 473
Abandoned, 1927.....	509
In use June 30, 1927.....	90, 964
Metered.....	78, 644
Not metered.....	12, 320
Percentage of services metered.....	85. 3

TABLE I.—Cost of work done by the water department for the year ended June 30, 1927

Heads of expenditures	Per diem and salaries	Material expended, cuts and transportation	Total expenditures	Charge to general account		Hauling and deposit accounts, debtor
				Maintenance	Extensions	
Water survey (detection of leaks).....	\$17, 258. 68	\$1, 229. 64	\$18, 488. 32	\$18, 488. 32		
Maintenance of meters.....	22, 392. 38	10, 851. 81	33, 244. 19	33, 244. 19		
Installation of meters.....	9, 382. 07	17, 974. 17	27, 356. 24		\$27, 356. 24	
Office of water registrar.....	91, 851. 21	7, 442. 44	99, 293. 65	99, 293. 65		
Inspection and repair of house service.....	22, 903. 88	2, 352. 18	25, 256. 06	25, 256. 06		
Tapping water mains.....	7, 333. 53	7, 978. 35	15, 311. 88		15, 311. 88	
New services installed.....	453. 14	487. 97	941. 11		941. 11	
Engineering (field survey).....	44, 078. 44	1, 701. 22	45, 779. 66		45, 779. 66	
Transportation account.....	26, 556. 41	7, 718. 68	34, 275. 09			\$34, 275. 09
Operation and repair of valves, fire hydrants.....	33, 182. 04	8, 179. 70	41, 361. 74	41, 361. 74		
Installation of fire and public hydrants.....	11, 959. 46	33, 976. 66	45, 936. 12		45, 936. 12	
Water mains laid.....	153, 423. 39	277, 082. 72	430, 506. 11		430, 506. 11	
Repair to leaks.....	35, 159. 72	11, 989. 60	47, 149. 32	47, 149. 32		
Maintenance of reservoirs, lodges, and towers.....	4, 341. 74	653. 86	4, 995. 60	4, 995. 60		
Care of grounds.....	8, 032. 03	506. 43	8, 538. 46	8, 538. 46		
Repayment and deposit work.....	35, 099. 63	38, 963. 17	74, 062. 80			74, 062. 80
Replacement work, lowering mains, etc.....	17, 193. 97	23, 927. 15	41, 121. 12	41, 121. 12		
Plans, estimate, and tests.....	19, 472. 13	470. 62	19, 942. 75	13, 295. 17	6, 647. 58	
Care of Bryant Street pumping station.....	26, 541. 20	3, 836. 63	30, 377. 83	30, 377. 83		
Operations and repairs of pumps, Bryant station.....	54, 185. 60	82, 151. 38	136, 336. 98	136, 336. 98		
Operation and repair of pumps, Reno station.....	5, 889. 38	1, 831. 05	7, 720. 43	7, 720. 43		
Operation and repair of pumps, Anacostia pumping station.....	7, 149. 58	2, 543. 97	9, 693. 55	9, 693. 55		
Shop work.....	38, 774. 69	33, 976. 44	72, 751. 13	72, 751. 13		
Furnished other District of Columbia departments.....	5, 050. 35	. 25	5, 050. 60	5, 050. 60		
Gross expenditures.....	697, 664. 65	577, 826. 09	1, 275, 490. 74	594, 674. 15	572, 478. 70	108, 337. 89

## SUMMARY

Expenditures:		Charge to—		Per cent	
		Maintenance	Extensions		
Per diem pay rolls.....	\$538, 109. 31		\$594, 674. 15	51	
Salary pay rolls.....	159, 555. 34		572, 478. 70	49	
Total services.....	697, 664. 65				
Material expended, cuts, etc.....	577, 826. 09				
Gross expenditures.....	1, 275, 490. 74				
Less transportation and repayment, creditors.....	108, 337. 89				
Net expenditures.....	1, 167, 152. 85	Total.....	1, 167, 152. 85	100	

TABLE II.—*Statement of the distribution system, including mains laid by the United States, the District of Columbia, and on account of repayment work*

Diameter	In service June 30, 1926	Laid during year ended June 30, 1927	Abandoned during year ended June 30, 1927	In service June 30, 1927
3-inch.....linear feet.....	90,316	1,234	-----	91,550
4-inch.....do.....	158,050	2,083	6,305	153,828
6-inch.....do.....	1,473,722	1,877	7,079	1,468,520
8-inch.....do.....	1,231,678	91,925	1,143	1,322,460
10-inch.....do.....	9,114	-----	-----	9,114
12-inch.....do.....	468,549	16,811	1,252	484,108
16-inch.....do.....	73,833	12,157	-----	85,990
20-inch.....do.....	146,216	-----	-----	146,216
24-inch.....do.....	37,329	-----	-----	37,329
30-inch.....do.....	72,166	-----	-----	72,166
36-inch.....do.....	63,844	34	-----	63,878
42-inch.....do.....	23	-----	-----	23
48-inch.....do.....	44,172	-----	-----	44,172
75-inch.....do.....	600	-----	-----	600
Total.....	3,869,612	126,121	15,779	3,979,954
Stop valves.....	12,408	641	184	12,865
Fire hydrants.....	4,289	217	4	4,502
Public hydrants.....	280	7	-----	287
Sanitary fountains.....	25	4	-----	29
Public wells.....	43	-----	4	39
Horse fountains.....	173	1	1	173

TABLE III.—*Statement of the length and cost of water mains laid from July 1, 1878, to June 30, 1927, paid from water department funds*

Diameter	In service June 30, 1926	Laid during year ended June 30, 1927	Abandoned during year ended June 30, 1927	In service June 30, 1927
3-inch.....linear feet.....	76,764	46	-----	76,810
4-inch.....do.....	116,444	376	6,305	110,515
6-inch.....do.....	1,080,377	496	7,079	1,073,794
8-inch.....do.....	1,167,273	90,395	1,143	1,256,525
10-inch.....do.....	6,746	-----	-----	6,746
12-inch.....do.....	406,790	16,353	1,252	421,891
16-inch.....do.....	60,300	12,157	-----	72,457
20-inch.....do.....	135,114	-----	-----	135,114
24-inch.....do.....	16,845	-----	-----	16,845
30-inch.....do.....	34,599	-----	-----	34,599
36-inch.....do.....	38,244	-----	-----	38,244
42-inch.....do.....	23	-----	-----	23
48-inch.....do.....	14,309	-----	-----	14,309
Total.....	3,153,828	119,823	15,779	3,257,872

Total cost to June 30, 1926..... \$6,145,794.78  
 Total cost for the year ended June 30, 1927..... 430,506.11

Aggregate cost to June 30 1927..... 6,576,300.89

## REPORT OF THE SANITARY ENGINEER

WASHINGTON, D. C. *September 1, 1927.*

SIR: The annual report of the sanitary engineer for the fiscal year ended June 30, 1927, is submitted herewith.

The division is still in urgent need of more office space to insure the most efficient work, there having been no relief of crowded conditions during the year.

The minimum dilution figure, that is the flow in cubic feet per minute per thousand of population, afforded by the Potomac River flow and based on an estimated population of 500,000, was 213, occurring on three days, July 17, 18, and 22. This is the highest minimum dilution figure experienced in some years and the figure for the year was well above the point considered safe by good practice.

A plan has been adopted and schedule of samplings approved to determine the per cent of precipitable solids in the sewage, to run for three years, by which time it is believed a reliable set of data may be accumulated in connection with sewage treatment.

Length of sewer per house served has increased from 68 feet last year to 98 feet this year and construction costs have risen \$0.85 per foot over the previous year.

Following the recommendations of the Bureau of Mines, made after an extensive study of the main station steam plant, the furnace space has been increased about 45 per cent, a new economizer has been installed and a water softener purchased. These changes are expected to result in material economy in the operation of the plant.

A new automatic substation known as Earle Place substation was completed and put in service on Earle Place just west of Bladensburg Road on April 18, 1927. This substation was designed to handle the sewage from a pocket between Bladensburg Road and Baltimore & Ohio Railway.

The present garage space by crowding is sufficient to house about 40 cars of the 64 in service at the end of the year. The remaining 24 cars have to remain in the open at all times. Such conditions are not conducive to efficient operation and should be remedied by the building of more coverage, space for which is available.

The following is a summary of the sewerage and sewage-disposal systems as of June 30, 1927.

Length of sewerage system (miles) :	
Main sewers-----	166. 21
Pipe sewers-----	702. 76
	<hr/>
	868. 97
Length of sewage-disposal system-----	39. 52
	<hr/>
Total length-----	908. 49
	<hr/>
Cost of the sewerage system-----	\$19, 181, 762. 99
Cost of the sewage-disposal system-----	6, 237, 292. 60
	<hr/>
Total cost-----	25, 419, 055. 59

The sanitary engineer desires to avail himself of this opportunity to express his appreciation for the loyal and efficient services and cooperation of the employees of the sewer division.

A brief résumé of the year's activities follows.

#### OFFICE ENGINEERING

This section is made up of three subsections: (1) Office engineering in relation to the sewer division proper, (2) office and field engineering with relation to the work of the public service corporations, and (3) the general clerical work of the entire division.

The duties of subsection (1) include all computing, designing, and drafting in connection with the development of the sewerage system, preparation of data and writing of indorsements on engineer department files referred to it, engineering drafting and clerical work found necessary in collaboration with other divisions and other sections of the sewer division, and the recording of office records closely allied to engineering work.

During the fiscal year the following work was performed under subsection (1): Incidental to 91 contracts, drawings and specifications were prepared and proposals scheduled; 39 other drawings showing special work such as minor pumping stations, junction and regulator chambers, special catch basins, etc., were prepared; 108 miscellaneous plats covering basin work and minor sewer extensions were made; 22 drainage studies, 6 of which were major projects, were prepared, involving finished maps indicating general and subareas as well as the collaboration of run-off and capacities; 26 roadway schedules involving 584 jobs and 305 sidewalk schedules were studied, and where desirable new sewers or the replacement of old and defective sewers were recommended in advance of the proposed paving; 102 street-grade maps and 136 alley-grade sheets forwarded by the surface division creating new or modifying existing grades were studied and acted upon according to their bearing on existing or future underground construction; 48 cases concerning the opening and closing of alleys were studied as to their effect upon the drainage system and approved or conditionally approved; 56 notices accompanied by blue prints carrying pertinent information were forwarded to the assessor covering cases where assessment had become due, 14 of which were caused by the subdivision of a parcel abutted by a service sewer and 42 caused by the connection of parcel property; 14 rights of way with accompanying plats were prepared for the purpose of acquiring easements for sewer construction across private property; 11 maps on a scale of 100 feet to the inch covering outlying sections of the District and showing all streets, grades, subdivision, etc., were made; maps of the division were posted to date by the recording thereon of 294 cases of separate construction work, 485 subdivisions, and 180 splits; the division's privy map was kept posted throughout the year, which work indicated the existence of 3,404 privies, an increase of 45 over the previous year; 1,977 "plumbing slips" were issued in connection with applications for building permits involving the erection of 2,575 dwellings and 148 apartment houses; blue prints were prepared and indorsements written on 892 jacketed engineer department files, 678, or 76 per cent, of which eventually carried ordered work and made necessary the preparation and forwarding to the assessor of 446 notices of pending sewer assessment; data was prepared and letters written answering 106 communications referred to this division; card indexes reflecting all new construction, subdivision, completion reports, record sheets, area drains, Y branches, standard drawings, sewers construed as service sewers, rights of way, and subsoil drains were kept posted to date.

The duties of subsection (2) include the preparation of permits for all public service corporation and private underground construction in public space in such manner as to not interfere with existing or future construction and assure an orderly occupation of such

space; the supervision of such work while in progress; the study of surface division paving schedules in order to recommend to the Public Utilities Commission the desirable underground construction in advance of paving, and the preparation of maps and records in connection with the work of the subsection.

Every effort has been made to eliminate all unnecessary routine procedure, and economies of time and stationery have been effected thereby. Permits are usually available for applicants within 24 hours after the receipt of the application.

During the year 3,985 permits were prepared and 6,402 inspections of work in progress were made; fifty-nine 50-foot scale maps of suburban sections were completed in order to provide additional records of underground construction in rapidly developing areas; 1,001 record sheets were made, showing work in detail, to supplement the map and card records; all surface division paving schedules were carefully studied and where necessary recommendations were made to the Public Utilities Commission that the affected companies be required to make all necessary or desirable extensions in advance of the proposed paving.

The following is a summary of work performed which required preparation of permits, field inspection, and location as well as office mapping and recording.

#### WORK DONE BY PUBLIC SERVICE CORPORATIONS

##### *Potomac Electric Power Co.*

Conduits laid, various sizes.....	miles..	23.321
Premises connected with electric conduits.....		5,836
Manholes constructed.....		1,521
Manhole drains to the sewerage system.....		261

##### *Chesapeake & Potomac Telephone Co.*

Conduits laid, various sizes.....	miles..	20.227
Manholes constructed.....		250
Manhole drains to the sewerage system.....		32

##### *Capital Traction Co.*

Conduits laid, various sizes.....	miles..	0.0116
Manholes constructed.....		1
Manhole drains to the sewerage system.....		2

##### *Washington Railway and Electric Co.*

Conduits laid, various sizes.....	mile..	0.0491
Manholes constructed.....		7
Manhole drains to the sewerage system.....		6

##### *Western Union Telegraph Co.*

Conduits laid, various sizes.....	miles..	1.4636
Manholes constructed.....		17
Manhole drains to the sewerage system.....		1

##### *Gas companies*

Mains laid, various sizes.....	miles..	36.0702
Premises connected with gas mains.....		3,306

Charges for supervision and inspection of this work were as follows:

Potomac Electric Power Co.....	\$3,930.65
Chesapeake & Potomac Telephone Co.....	2,427.48
Washington Gas Light Co.....	2,554.05
Georgetown Gas Light Co.....	1,183.63
Washington Railway & Electric Co.....	15.09
Capitol Traction Co.....	3.55
<b>Total.....</b>	<b>10,114.45</b>

#### WORK DONE BY PRIVATE CORPORATIONS AND INDIVIDUALS

Vaults constructed in public space.....	14
Fuel oil tanks installed, various capacities.....	67
Gasoline and fuel oil pipes laid to curb.....	168
"Free air" lines for inflating automobile tires.....	8
Steam pipes and conduits laid in public alleys.....	4
Private pipe lines in public space.....	1
Private conduits in public space.....	1

#### WORK DONE BY THE WATER DEPARTMENT

Drains to public sewers from fire hydrants, air valves, watering troughs, etc.....	9
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The duties of subsection (3) include the preparation of requisitions and vouchers, records of cost of day labor and contract construction, preparation of pay rolls and pay-roll analysis sheets, material and equipment accounting, control of division finances, preparation of estimates and data for their defense, and the clerical work in connection with the records of the subsection of maintenance.

Requisitions were prepared and approved for the purchase of supplies, tools, and equipment for construction work amounting to \$114,631.22 and for construction material amounting to \$187,266.38, and vouchers were approved for payment therefor upon delivery and recorded.

Contract construction vouchers were audited and approved for an aggregate of \$745,049.97. The surface division was paid \$36,378.36 for resurfacing over sewer construction work. As a means of reference, all of the foregoing expenditures were recorded in a card file.

Pay rolls were prepared, audited, and approved for payment aggregating \$609,410.68.

Report was made and submitted to the auditor covering an inventory of all expendable and nonexpendable supplies, materials, and equipment on hand at the storeroom and storeyard.

Complete ledger control was maintained over all appropriations throughout the year and the balances in the various appropriations were computed semimonthly and checked with the auditor. At no time during the year did the expenditures exceed the apportioned allotments made the 1st of July, pursuant to the provisions of the antideficiency act. During the year the general reserve of 5 per cent withheld from the various appropriations were released and expended, with the exception of the Anacostia main interceptor and condemnation appropriations, which were not required.

Financial statements were prepared monthly to permit a study of available balances, and through a study of these statements an



orderly program of expenditures was arranged and the expenditures were kept within the limits allotted and an overobligation at the close of the year avoided.

Daily records on all issues of street-car transportation and postage were maintained and detailed reports prepared monthly.

Systems were devised and installed for recording cup-gauge data for determining overcharging of sewers.

Daily reports were prepared and submitted to the sanitary engineer covering the following activities: Construction work in progress on the sewerage system and the sewage disposal system; operation, maintenance and repair of the sewerage system, sewage disposal system, pumping stations, shops, yards; supervision and inspection of subsurface construction work in progress by various public-service corporations.

The annual partial inspection of trunk sewers was briefed, and a detailed report was compiled as to their physical condition, and all defects requiring minor repair jobs were listed.

Forty-five classification sheets were prepared for appointments and transfers and forwarded to the Personnel Board.

Two positions were appealed, one granted and action on one is pending.

During the year reallocation of grade was granted one assistant engineer and 17 inspectors.

Graphic charts used in connection with efficiency ratings of classified employees were prepared and submitted, as of May 15, 1927. Approved ratings were furnished each employee.

In connection with the agreement between the District of Columbia and the Washington Suburban Sanitary Commission the first connection on the eastern boundary line of the district was made May 4, 1927, at Sixty-first Street and Southern Avenue, whereby 23 houses in the subdivision of Capitol Heights were connected to the District's system. In accordance with the previous agreements the flat rate of \$1 per house per year for connection to the system will be levied and bills rendered accordingly.

A total of 104,300 reports were handled by this section during the year, while the total expenditures by the division totaled \$1,692,736.61.

#### CONSTRUCTION

The work of this section includes 3 subsections, (1) surveys, (2) supervision and inspection of all sewers built under contract, (3) construction by day labor of all minor sewers and their appurtenances.

The duties of subsection (1) include preliminary and detailed survey work in connection with office studies and design and procuring of necessary field data incidental to sewer construction.

Sixty-six and four-tenths miles of profile were run and plotted, grade sheets were drawn up and filed, assessment plats were prepared and forwarded to the assessor, 188 measure sheets for contract work were prepared and copies filed, and permits were granted for the construction of 347 area drains and 84 garage traps.

The duties of subsection (2) include the supervision and inspection of sewers constructed under contract.

Eighty-five contracts were completed during the year with section, length, and costs as follows:

Section	Length (feet)	Cost
County west of Rock Creek.....	37,661.47	\$346,107.87
County east of Rock Creek.....	27,044.85	256,924.71
County west of Anacostia River.....	10,210.87	68,235.78
County east of Anacostia River.....	14,343.88	115,961.19
Washington City.....	8,727.40	147,925.50
Total.....	97,988.47	935,065.05

The year ended with work in progress on 12 contracts and with 15 contracts awarded on which no work has been done.

The duties of subsection (3) include the construction of minor sewers and their appurtenances and storm-water catch basins by day labor.

The subsection constructed 44,087.99 feet of sewers during the year—section, length, and cost as follows:

Section	Length (feet)	Cost
County west of Rock Creek.....	12,158.88	\$55,499.15
County east of Rock Creek.....	16,467.77	81,709.77
County west of Anacostia River.....	4,883.54	24,279.08
County east of Anacostia River.....	3,666.65	15,551.69
Washington City.....	6,911.15	62,551.69
Total.....	44,087.99	239,245.40

There were also constructed by day labor 375 storm-water catch basins, 246 manholes, 1 junction chamber, 1 regulator chamber, 5 alley basins, 42 house lateral connections, 77 Y pipes inserted, and miscellaneous work on Earle Place substation, garages, and avenue roping done.

Service sewers constructed under contract and by day labor totaled 113,131.02 feet, costing \$585,976.44 and serving 1,153 houses. These figures show the average length of sewer for each house served to be 98.2 feet at an average cost of \$508.66 per house.

#### MAINTENANCE AND OPERATION

The work of this section is divided into three subsections, (1) maintenance of the sewers, (2) operation of the pumping stations, (3) division transportation.

The duties of subsection (1) include the cleaning of catch basins; attention of complaints; cleaning and flushing of pipe sewers; inspection of tide gates, regulators, sumps, and screens operated in connection with the sewers; inspection of the interior of trunk sewers; collection of data on rainfall and flow in sewers, and assisting the city refuse division in removal of snow.

The 4,968 catch basins in the city proper were cleaned on an average of once each 43 days, a total of 42,247 cleanings for the year, removing 9,671 cubic yards of silt at a total cost of \$22,112. The 2,225 catch basins in the county were cleaned on an average of once every 73 days, a total of 11,087 cleanings for the year, removing 3,628 cubic yards of silt at a total cost of \$9,651.37. These figures show a reduction in cost per basin cleaned of \$0.12 from last year's figures.

In connection with this activity but not included in the above statement, 407 cubic yards of silt were removed from garage traps, the cost of such removal being borne by the owners of the traps; 962 cubic yards of silt were removed from the ink chambers of the Bureau of Engraving and Printing; 172 cubic yards from the Kenilworth regulating chamber, and 4 cubic yards from bridge drains.

During the year 3,181 complaints were received, approximately 65 per cent of which received the attention of the sewer division, the remaining 35 per cent being connected with the activities of other divisions or pertaining to private property. These complaints were classified as follows: 220 public sewers obstructed, 556 catch basins obstructed, 70 foul odors from sewers, 20 dead animals in catch basins, 20 lost articles in sewers, 519 obstructed house laterals, 237 broken manhole covers, 3 accidents, 368 flooded cellars, and 407 miscellaneous complaints. In every case the matter complained of was remedied as soon as the facilities of the division permitted and where possible conditions changed to prevent repetition.

A total of 64.9 miles of pipe sewer were cleaned during the year, 473 cubic yards of silt being removed. In connection with this cleaning work 234 basin connections were cleaned, 436 house connections were located, and 270 old sewers examined.

One thousand nine hundred and forty-six miles of pipe sewer and 30,325 manholes were flushed, and the flushing force removed 220 obstructions from the sewers.

The 107 tide gates, 127 sumps, 17 regulators, and 8 screens operated in connection with the sewers were inspected a total of 14,064 times during the year.

The inspection of the interiors of trunk sewers was greatly curtailed during the year, only 6.94 miles of the very old ones being inspected. Very little repair work was found necessary.

The division maintained 13 automatic rain gauges, 18 pot gauges, and 140 sewer cup gauges during the year. These, with the data obtained from 2 automatic gauges of the Weather Bureau give a rainfall and run-off record of great value. Nine storms of sufficient intensity to cause property damage or overcharged sewers were recorded during the year, six of which occurred in the period of July 1 to September 10, 1926.

As a result of a mild winter the cooperation of the division was little needed in the removal of snow, only three manholes being opened and 569 cubic yards of snow dumped in the sewers.

The duties of subsection (2) include the operation of the steam-driven main sewerage pumping station and the four electrically driven substations; the supervision of machine shop, blacksmith shop, carpenter shop, paint shop, and cement shop operated in connection with the pumping stations, and keeping of records in connection with the study of performance of the stations.

The total pumpage at the stations during the year was as follows:

Main station.....	gallons..	30, 739, 006, 000
Poplar Point substation.....	do.....	700, 194, 496
Rock Creek substation.....	do.....	473, 243, 000
Woodridge substation.....	do.....	13, 361, 500
Earle Place substation <sup>1</sup> .....	do.....	115, 731

<sup>1</sup> Substation put in service Apr. 18, 1927.

Eliminating the last three substations, which deliver their discharge to the main station, the above figures show a mean total daily pumpage of 86,134,796 gallons, approximately equaling the previous year.

The total coal consumption at the main station for the fiscal year was 4,589 tons, of which about 14 per cent should be charged to uses by the incinerator, blacksmith shop, and bunker loss including one bunker fire.

There were removed from the sediment chamber 1,660 cubic yards of silt and from the suction conduit 56 cubic yards; 869.6 tons of debris were removed from the screens, pressed, and incinerated; 457.3 tons of ashes were removed from the boiler ash pits and 76.4 tons of ashes from the incinerator. All silt and ashes were deposited on the flats of the Anacostia River.

There was only one period of comparatively high water in the Potomac River during the year, when on November 17 and 18 the discharge rose to 99,000 and 100,625 second-feet. The minimum flow, 1,775 second-feet occurred on three days, July 17, 18, and 22, the mean flow for the year being 15,850 second-feet. The maximum range of the tide in the Anacostia River as registered by an automatic gauge was 9.9 feet, the maximum range for one day being 8.3 feet.

In connection with the study of the main station plant made by the Bureau of Mines considerable progress has been made in its betterment. The fronts of 2 boilers have been moved out to increase the size of the combustion chambers, bringing them close to the size demanded by modern practice. Necessary equipment has been purchased to make similar changes in the 4 remaining boilers. There has also been purchased an economizer to replace the old one, which was beyond repair; 6 sets of stationary soot blowers to replace the old and inefficient hand blowers; 2 boiler feed pumps for use as spares in connection with the old pumps, which are old and in need of overhauling. This equipment was in process of installation at the time of this report. There has also been purchased a water softener to prevent the formation of scale in the boiler tubes, which will be installed as soon as received.

The duties of subsection (3) include the supervision and maintenance of all division transportation and the maintenance of all internal-combustion equipment.

There were maintained during the year 58 automobiles, 25 passenger-carrying machines, and 33 trucks; 2 tractors, 2 air compressors, motors on 2 tugs, concrete mixers, and gasoline pumps.

The mileage of all automobiles totaled 471,465 miles; 184,851 for passenger-carrying machines and 286,614 for trucks.

During the year there were added 6 trucks, 1 air compressor, 1 concrete mixer, and 1 portable gasoline pump.

Garage space to house the 64 automobiles and 2 tractors and a larger repair shop are urgently needed.

J. B. GORDON, *Sanitary Engineer.*

To the ENGINEER COMMISSIONER.

## REPORT OF THE CITY REFUSE DEPARTMENT

WASHINGTON, D. C., *August 16, 1927.*

SIR: I have the honor to submit the following report of the operations of the city refuse division, engineer department, for the year ended June 30, 1927.

The appropriation of \$450,000 for cleaning permitted work to be done over a considerably greater area than had been done heretofore. Reference to the tables appended hereto will show the quantities and cost of the several methods used.

In the work of collection and disposal of refuse of the city a noteworthy feature was the amount of garbage collected. This was 12½ per cent greater than for the year before, but it was not so rich in fats, so that the amount of grease produced was slightly less than a year ago, and as the market for grease this year was poor the resulting revenue from the reduction plant was about \$70,000 less than for the previous year.

The cost of operation of the reduction plant, which produced this grease, was \$155,137.49. The revenue from the grease sold from this plant was \$182,468.26. It is interesting to note that notwithstanding the prevailing price for the year was low our grease brought the best price on the market of the whole country, averaging 5¼ cents per pound for the year.

The revenue from salvaged trash sold was also less than a year ago, on account of the cheap price of paper. The total receipts by this department from all sources was as follows:

Grease -----	\$182,468.26
Waste materials -----	70,385.27
Dead animals (hides) -----	1,868.00
Manure -----	2,266.04
	<hr/>
	256,987.57

The quantity of ashes collected was within 1 per cent of that collected in the previous year, indicating a mild winter, and also the growing use of oil burners, which seem to balance the increased number of residences.

The number of dead animals collected during the year was surprisingly large, totaling 47,064.

The unit costs in all branches of the work were lower than last year, and for this achievement I wish to express my acknowledgment of the loyal and interested services of the employees of this division.

MORRIS HACKER,  
*Supervisor City Refuse.*

To the ENGINEER COMMISSIONER.

*Cost of street cleaning, July 1, 1926, to June 30, 1927*

	Area (square yards)	Cost	
		Total	Unit per thousand
Horse sweepers.....	70,843,000	\$22,622.29	\$0.319
Hand sweepers.....	60,126,000	10,567.10	.176
Alley cleaning.....	103,250,000	58,839.96	.571
Suburban cleaning.....	57,831,000	25,894.34	.447
Hand patrol.....	1,739,011,000	211,723.95	.122
Motor flushing.....	705,056,000	50,299.00	.0714
Sprinkling.....		547.99	
Annual overhead.....		2,295.44	
Property accounting.....		6,760.10	
Dump men.....		3,521.26	
Waste-paper boxes.....		5,476.80	
Sunday cleaning.....		3,608.72	
Snow and ice.....		9,673.59	
Total.....		411,630.55	

*Table showing comparative data in connection with street-cleaning work,  
1923 to 1927*

## SQUARE YARDS CLEANED

	1923	1924	1925	1926	1927
Hand patrol.....	1,466,464,000	1,563,035,000	1,504,989,000	1,603,576,000	1,739,011,000
Machine, horse.....	65,451,000	64,673,000	62,171,000	63,627,000	70,843,000
Machine, hand.....	49,197,000	51,619,000	49,077,000	47,678,000	60,126,000
Alley cleaning.....	63,082,000	85,716,000	92,676,000	94,781,000	103,250,000
Suburban streets.....	39,234,000	38,259,000	41,383,000	50,794,000	57,831,000
Squeegeeing.....	59,940,000	46,387,000			
Motor flushing.....	72,628,000	89,246,000	323,825,000	566,451,000	705,056,000

## DIRECT TOTAL COST

	1923	1924	1925	1926	1927
Hand patrol.....	\$204,983.34	\$205,551.42	\$213,380.68	\$198,294.05	\$211,723.96
Machine, horse.....	19,534.74	21,312.26	20,767.74	21,411.41	22,622.29
Machine, hand.....	13,065.07	13,538.78	11,247.17	9,899.26	10,567.10
Alley cleaning.....	39,392.12	53,227.77	53,238.58	56,616.73	58,839.96
Suburban streets.....	18,024.78	20,776.27	21,369.26	25,147.79	25,894.34
Squeegeeing.....	11,845.35	7,772.83			
Motor flushing.....	8,795.66	9,726.74	24,773.56	38,237.62	50,299.00

## COST PER 1,000 SQUARE YARDS

	1923	1924	1925	1926	1927
Hand patrol.....	\$0.140	\$0.131	\$0.142	\$0.124	\$0.122
Machine, horse.....	.298	.380	.334	.337	.319
Machine, hand.....	.266	.262	.229	.208	.176
Alley cleaning.....	.624	.622	.575	.598	.571
Suburban streets.....	.459	.542	.516	.495	.447
Squeegeeing.....	.198	.169			
Motor flushing.....	.121	.109	.077	.0675	.0714

Table showing comparative data in connection with disposal of all city waste from 1923 to 1927

## NUMBER OF UNITS COLLECTED

	1923	1924	1925	1926	1927
Garbage.....tons..	80,014	75,089	72,927	68,907	77,554
Ashes.....cubic yards..	145,432	151,272	154,982	168,280	165,388
Miscellaneous refuse.....do.....	190,021	186,907	197,890	215,320	236,519
Night soil.....barrels..	15,217	16,063	17,727	18,653	18,648
Dead animals.....number..	30,120	34,764	43,609	43,624	47,064

## TOTAL NET COST

Garbage.....	\$187,314.43	\$235,235.01	\$200,292.77	\$186,530.56	\$288,783.28
Ashes.....	117,727.67	131,589.11	133,484.49	137,893.99	123,711.99
Miscellaneous refuse.....	51,087.38	84,139.49	101,539.75	130,733.18	135,950.48
Night soil.....	17,500.00	24,000.00	24,000.00	24,000.00	22,600.00
Dead animals.....	3,360.00	4,911.81	4,668.84	7,126.34	9,308.85

## Miscellaneous data on contracts

Class of waste	Contractor	Period of contract	Date of expiration	Price per annum	Collected from—
Night soil.....	Warner Stutler....	3 years..	June 30, 1929	\$22,600	All privies in the District.

## REPORT OF THE WHARF COMMITTEE

SEPTEMBER 1, 1927.

SIR: The wharf committee has the honor to submit the following report for the fiscal year ended June 30, 1927:

Leases of the following tenants expired during the year:

Henry C. Sheridan, foot of N Street SW.

Washington-Colonial Beach Steamboat Co., foot of Sixth Street SW. This lease was canceled as of June 1, 1927.

James O. Holmes, foot of Eighth Street SW.

New leases were entered into with Henry C. Sheridan and James O. Holmes.

The Smithfield, Newport News & Norfolk Steamship Co. leased the dock formerly leased by the Washington-Colonial Beach Steamboat Co. for the period June 21 to September 21, 1927. This company operated a steamboat to Colonial Beach, Va., and moonlight excursions.

The lease with A. H. Gregory for water space at the foot of N Street SW. was canceled on June 30, 1927.

The rental of wharf property occupied by L. A. Clarke & Son was increased from \$1,200 to \$1,500 per annum.

On the Anacostia Channel leases were entered into with the Smoot Sand & Gravel Co. for water space at the foot of Q Street SE., and with the Columbia Sand & Gravel Co. for water space at the foot of R Street SE.

Business was fairly good at the municipal fish wharves during the last fiscal year. Cargoes of watermelons, fish, crabs, oysters, sugar, canned goods from canneries down the river, plumbing materials, and lumber came to this port. One ocean-going freighter

carrying a large cargo of Douglas fir lumber shipped from the Pacific coast was unloaded at the fish wharves.

The total revenues derived from wharf rentals, including the fish market, amounted to \$34,558.45.

That part of the water front along the Washington Channel lying between the south curb line of N Street south, and Thirteenth Street west, is under the control of the Commissioners of the District of Columbia and is used and occupied by the municipal fish market and wharves, the morgue, harbor precinct, headquarters of the fireboat company, warehouse and sand wharves, all of which are municipal activities; and also by lumber and cordwood dealers, warehousemen, boathouses, marine railways, and five steamboat companies operating passenger and freight steamers.

The water front along the Georgetown Channel is in private ownership with the exception of the termini of streets. The water space at the foot of Thirty-first Street NW, between the building lines is leased by the Cranford Co.

Along the Anacostia River the United States Navy Yard occupies the frontage on the city side between Second and Eleventh Streets SE. The sewage-pumping station and yard occupies the frontage between First and Second Streets. The intake of the Capital power plant is located at the foot of First Street SE. The only frontage along the Anacostia River under lease is that between the building lines of Q and R Streets SE.

During the year concrete footings at the municipal fish wharf were repaired at a cost of \$4,596.39. Fender and cluster piles were replaced and new timber strakes and curbs installed at these wharves at a cost of \$5,341.29.

The rubble masonry revetment wall under the district morque was reconstructed at a cost of \$1,638.

Repairs were made at the Norfolk & Washington Steamboat Co. dock at the cost of the tenants.

The wharf committee is informed that the report prepared by the United States Engineer Office relating to the general development and improvement of the water front along the Washington Channel will be transmitted to Congress in December. It is hoped that this project may be approved and funds provided in order that the work of improving this water front, which has been long delayed, may be prosecuted expeditiously. While it has been possible to maintain some of the timber wharves along the water front by agreement with the tenants, it is a fact that many wharves are in an advanced stage of deterioration. Piling is badly decayed and supporting timbers are crumbling.

The morgue wharf should be reconstructed. Existing bearing piles show sufficient decay to indicate a loss of from 25 to 80 per cent of their structural value. Pile caps, posts, and sill are positioned without uniformity and are sway-braced with a miscellaneous collection of timbers of doubtful strength. By reason of the structural condition of the morgue wharf it will be necessary to secure funds to rebuild or substantially repair the same at an early date. It would be uneconomical and ill-advised to expend any great sums for reconstruction or repair of existing wharves if Congress provides funds for beginning the general improvement of the water front



within the next year or two. The wharf committee can not urge too strongly that the development and improvement of the water front be begun at an early date.

Due to the efforts of the United States Engineer Office structures which projected beyond the building line on the river side of Water Street from N Street south are being set back.

A statement giving all pertinent data as to leaseholds, rentals, areas occupied, etc., is on file in the office of the chief clerk, engineer department—E. D. 167,713-3.

ROLAND M. BRENNAN,  
*Chief Clerk, E. D., Chairman.*  
 D. E. McCOMB,  
*Engineer of Bridges.*  
 H. R. LOHMAN,  
*Harbor Master.*

To the ENGINEER COMMISSIONER.

## REPORT OF THE ENGINEER OF HIGHWAYS

WASHINGTON, D. C., August 23, 1927.

SIR: I have the honor to submit the following report of the operations of the office of the engineer of highways for the fiscal year ended June 30, 1927.

The total amount of funds appropriated by Congress and deposited by corporations and others for disbursement by the highway division aggregated \$3,173,807.59, of which \$300,000 was for paving sidewalks and alleys in all parts of the District; \$148,600 for paving new roadways; \$1,000,000 for repairing old roadway pavements, including asphalt resurfacing; \$295,000 for repair of suburban roads; \$68,300 for construction and repair of bridges and viaducts; \$25,000 for constructing highway guards on the Calvert Street, Connecticut Avenue over Klinge Valley, and Pennsylvania Avenue SE. bridges; \$50,000 for grading streets and avenues; \$15,000 for sidewalks and curbs around Government reservations, buildings, and parks; \$25,000 for paving roadways under the permit system; \$658,100 for paving and repaving roadways under the gasoline tax, road, and street fund; while \$588,807.59 was spent in repairing pavements disturbed by other branches of the District Government and by various corporations and others.

*Summary of work under appropriation for improvement and repairs for year ended June 30, 1927*

Standard asphalt pavement.....	square yards..	71, 668
Standard asphalt surface.....	do.....	197, 909
Asphalt surface pavements (blanket treatment).....	do.....	17, 896
Vitrified block gutter.....	do.....	13, 524
Cement concrete roadway pavements.....	do.....	131, 871
Old cobble and block removed.....	do.....	2, 810
Granite and bluestone curb set.....	linear feet..	21, 424
Cement curb formed and laid.....	do.....	56, 770
Grading.....	cubic yards..	351, 181
Cement concrete sidewalks (assessment and permit work).....	square yards..	34, 057. 51
Cement concrete sidewalks (around Government reservations).....	do.....	8, 967. 21
Cement concrete alleys (assessment and permit work).....	do.....	51, 878. 67

The following is the list of tables appended to the report:

- Table A. Street railways in the District of Columbia, July 1, 1927.
- Tables B and C. Statement of character and extent of street pavements.
- Table E. Street improvements.
- Table F. Repairs to asphalt and coal-tar pavements.
- Table G. Work done for street-railway companies.
- Table H. Work done by day labor under appropriation for "Repairs to streets, avenues and alleys."
- Table I. Regular permit work.
- Table K. Assessment work.
- Table L. Replacing and repairing sidewalks and curbs around public reservations.
- Table N. Whole cost work.
- Table O. Repairs to cuts by plumbers and others.
- Table P. Grading streets, alleys and roads.

Of the above tables, B, C, and O are printed herewith. The remaining tables are on file in the record room of the office of the engineer of highways, plan case No. B-1324.

The principal fields of activity in the year's construction work was the new roadway-paving program and the resurfacing of old asphalt roadways. Nearly 40 items of street paving, many of them several squares in length, were executed, as well as about 10 street-grading items, the latter aggregating about \$60,000. The larger part of the street-widening program and a large part of the asphalt-roadway resurfacing was contributed to the season's activities by items in the deficiency bill for the preceding year, aggregating about \$600,000. These are not included in the summary in the first paragraph of this report. The newly provided street-widening items were Eleventh Street NW., from New York Avenue to Massachusetts Avenue, and Wisconsin Avenue, from Thirty-seventh Street to Massachusetts Avenue. The year's asphalt-resurfacing program has embraced the proportion of work necessary to a four-year program of elimination of pavements 30 years old and upward.

The roadways of nine streets were paved under the permit system, under which the half-cost is deposited in advance by the property owners.

Some reduction in the recent heavy demand for new sidewalk and alley paving was manifested, but not to the degree that our rules for selection of items to be authorized could be materially modified. Unless the frontage is substantially built up and lacks sidewalk or alley pavement the use of these funds is not authorized even if requested.

The unit costs of construction work were generally quite satisfactory.

The number and cost of repairs of cuts made in street pavements again exceeded all previous records; the total expenditures of the force charged with the execution of this work rising to nearly \$590,000. This work is largely chargeable to the deposits of corporations and individuals for whose uses the cuts were made, and it is a satisfaction to record that the unit costs of the work have not in recent years led to a known criticism from any of the contributors of the fund expended.

#### MUNICIPAL ASPHALT PLANT

The total output of the municipal asphalt plant for the year was 203,076 cubic feet of material, consisting of 5,568 cubic feet of old

material and 197,508 cubic feet of topping mixture. The plant was operated for 255 $\frac{3}{4}$  days, with an average daily output of 794 cubic feet.

Constant attention is given to the maintenance of the plant, repairs being made and parts replaced when necessary, thereby keeping it in the best operating condition possible. This cost is incorporated in the total cost of output shown below.

The following material in amount and cost average set forth below were purchased for use in manufacturing the output during the year:

Limestone dust, 400 tons.....	\$5. 45
Sand, 8,020.5 cubic yards (including haul).....	1. 32
Asphaltic cement, 1,101.8915 tons.....	21. 65

There were purchased for use in operating the mixer the following large items and the cost average:

Fuel oil, 39,878 gallons.....	\$0. 06439
Coal, 320.01 tons.....	5. 98
Wood, 50 cords.....	14. 805

The cost of operation, including labor and material, are kept from day to day, and the summary of this data for the fiscal year develops the following unit costs for the year's operation:

#### *Operation of plant*

(Period of operation, 255 $\frac{3}{4}$  days; total output, 203,076 cubic feet)

Total manufacturing cost per cubic foot:	Cents
Labor.....	8. 70
Fuel Oil.....	1. 30
Coal.....	.93
Wood.....	.18

Total cost.....	11. 11
Haul from plant to street, labor.....	6. 66

On street:	
Labor.....	30. 55
Painting joints.....	.41
Fuel.....	.18

Total cost.....	31. 14
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Maintenance and repairs:	
At plant.....	.58
On street.....	.07
Total cost.....	.65

Overhead: The original cost was amortized by deducting 20 per cent from same each year during the first five years of its life.

Supervision: Foremen and overseers.....	5. 79
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Total manufacturing cost per cubic foot:	
Plant labor.....	11. 11
Hot haul.....	6. 66
Street work.....	31. 14
Maintenance of plant and tools.....	.65
Supervision.....	5. 79
Total cost.....	55. 35

The sand used was bought under contract at 80 cents per cubic yard and hauled from the wharf to the plant at the cost of \$4,156.14 for 8,020.50 cubic yards, or \$0.52 per cubic yard, a total of \$1.32 per cubic yard. All other expendable material was delivered at the plant site at the cost thereof used herein.

Topping mixture:

94.21 pounds of sand, at \$0.80 per cubic yard; hauled, \$0.52 per cubic yard.....	\$0.05483
9.58 pounds limestone dust, at \$5.45 per ton.....	.02610
11.05 pounds asphaltic cement, at \$21.65 per ton.....	.11961
Cost of material.....	.20054
Manufacturing and placing cost.....	.55350
Total cost per cubic foot.....	.75404

The total cost of minor repairs to sheet asphalt and asphaltic concrete pavements during the year, the same representing the maintenance cost during the year, was \$98,644.90. This cost represented the maintenance of all asphalt and asphaltic concrete streets not under guaranty by contractors, a total yardage of 3,571,417. The cost per square yard per year was therefore about 2.76 cents.

For purposes of record and comparison the like annual costs are here stated for past years: 1908, 3.8 cents; 1909, 2.3 cents; 1910, 2.6 cents; 1911, 2.2 cents; 1912, 2.4 cents; 1913, 2 cents; 1914, 1.9 cents; 1915, 1.9 cents; 1916, 1.8 cents; 1917, 1.5 cents; 1918, 1.7 cents; 1919, 3.07 cents; 1920, 3.38 cents; 1921, 3.75 cents; 1922, 2.69 cents; 1923, 2.22 cents; 1924, 1.89 cents; 1925, 2.62 cents; 1926, 3.55 cents.

During the year there was purchased from the Cranford Co., under contract No. 8839, the following material in bulk at contractor's plant, to be used in connection with minor repairs to asphalt pavements and repairs to cuts:

2,192 cubic feet of topping, at \$0.50 per cubic foot.....	\$1,096.50
1,732.8 cubic feet binder, at \$0.45 per cubic foot.....	779.76
Total.....	1,876.26

The material was hauled from the plant and laid in the streets by the District of Columbia minor repair forces, thus completing the contract with the Cranford Co. made during the fiscal year 1926.

In connection with these costs of annual repair it should be considered that some of the streets approximate an age of 40 years and that the average age of those we have resurfaced in recent past years exceeds 25 years. The average age of streets resurfaced in 1910 was 25.8 years; in 1911, 24.5 years; in 1912, 25.8 years; in 1913, 26 years; in 1914, 28.5 years; in 1915, 28 years; in 1916, 29.6 years; in 1917, 27 years; in 1918, 26 years; in 1919, 26.7 years; in 1920, 23.6 years; in 1921, 23.2 years; in 1922, 28.7 years; there was no resurfacing done in 1923 and very little in 1924; in 1925, 28 years; in 1926, 28.4 years; in 1927, 30 years.

#### STREETS

Repairs to streets, avenues, and alleys, appropriation 1927, were made under the immediate supervision of the superintendent of streets, as follows:

Brick sidewalk relaid.....	square yards..	16,481
Asphalt block repaved.....	do.....	9,340
Vitrified block repaved.....	do.....	8,670
Curb reset.....	linear feet..	325
Cement walk relaid.....	square yards..	15,212
Grading.....	cubic yards..	3,780
Labor.....		\$144,068.19
Material.....		\$17,864.27

## SUBURBAN ROADS

The amount expended for repairs to suburban roads in the fiscal year ending June 30, 1927, was \$376,278, as follows:

Appropriation for repairs to suburban roads, 1927.....	\$294,511.56
Expended from the amount made immediately available in the District of Columbia appropriation bill for 1928.....	81,766.44
	<u>376,278.00</u>

## Maintenance and repair of macadam roads and streets:

Road oil and tar purchased for surface treatments.....	gallons..	247,624
Crushed stone purchased.....	tons..	18,841
Gravel used for covering material.....	do.....	6,004.2
Cold bituminous mixture mixed and applied (approx.).....	do.....	15,225
Stone used in same, approximately.....	do.....	14,625
Bituminous patching material bought.....	gallons..	204,656
Cost of bituminous mixture at plant, including materials, approximately, per ton.....		\$4.93
Cost of surface treatment varied with materials used and thickness of coat from 4½ to 9 cents per square yard and average (per square yard) about.....		<u>\$0.065</u>

## In the area covered by suburban streets and roads:

1,507,000 square yards of macadam streets repaired at an average cost of \$0.093 per square yard, total.....	\$140,228.12
600,000 square yards given surface treatments at an average cost of 6½ cents per square yard, total.....	39,000.00
Operation of mixing plant cost.....	24,216.88
Total.....	<u>203,445.00</u>

One million five hundred seven thousand square yards maintained at an average total cost of 13½ cents per square yard.

About 38 miles of unimproved streets were covered with a temporary surface at an average cost of \$1,124.15 per mile; total \$42,717.

Minor repairs were made to about 160 miles of unimproved streets at a cost of about \$620 per mile; total, \$99,505.81.

The following amounts of material were used in repairs and surfacing of unimproved or partly improved streets and roads:

Ashes from refuse division, approximately.....	cubic yards..	5,000
Old material from streets being repaired.....	do.....	27,490
Cinders purchased and delivered by contract.....	do.....	22,503

The continued increase in the number of heavy trucks carrying loads of maximum weight permitted, and in some cases more, brings a constant addition to the cost of keeping the roads and pavements in condition for travel, and causes their deterioration at a progressively increasing rate. Thus the unit cost of repair of pavements of any class subjected to such traffic is increased as the traffic increases, and the useful life of the pavement is shortened.

## BRIDGES

The expenditures from the appropriation for construction and repair of bridges amounted to \$39,904.91. The principal items of work were:

Chain Bridge, paint-----	\$1,025.04
Twentieth Street Bridge, over Piney Branch, paint-----	3,005.51
Calvert Street Bridge, over Rock Creek, cleaning and painting-----	3,042.13
K Street Bridge, over Rock Creek, refloor-----	2,499.58
Pennsylvania Avenue Bridge, over Eastern Branch, rebuilding guard rails on approach-----	1,007.39
Livingston Road Bridge at District of Columbia line, widened-----	1,272.51

The Van Buren Street subway under the tracks of the Baltimore & Ohio Railroad was completed.

Highway guards were installed on the Calvert Street, Pennsylvania Avenue SE., and Klingle Road Bridges under a specific appropriation made therefor.

The concrete footing of the municipal fish wharves were repaired and the fender piles, timber strakes, and curbs replaced.

Tables showing in detail all work done and its cost are on file.

My acknowledgments are due to the employees of this division for the work accomplished by the office during the year.

C. B. HUNT,  
*Engineer of Highways.*

## REPORT OF THE INSPECTOR OF ASPHALTS AND CEMENTS

AUGUST 24, 1927.

SIR: I have the honor to submit the following report of operations of this division during the fiscal year ending June 30, 1927. Total number of samples tested, 11,505; records of each on file in this office.

## ASPHALT PAVEMENTS

There were laid approximately 287,473 square yards of asphalt mixtures, 17,896 yards of which were asphalt concrete sand topping mixture (Bessonite).

## CONCRETE ROADWAYS

There were 131,871 square yards of concrete roadways laid. The aggregate was plant proportioned in batches and mixed on site of work. General average of compression tests showed a maximum of 2,982 and a minimum of 2,439 with a general average of 2,723 pounds per square inch.

## PORTLAND CEMENT

There were approximately 139,770 barrels of various cements inspected and issued; 8,543 samples were tested and there were no rejections.

Tables showing in detail materials tested, results thereof, and by whom submitted are on file in this office.

Very respectfully,

V. CLEAVER,  
*Inspector of Asphalts and Cements.*

The ENGINEER OF HIGHWAYS.

TABLE O.—Number of square yards and cost of repairs to cuts in various streets, sidewalks, and alleys during the year ending June 30, 1927, chargeable to plumbers, public service corporations, individual depositors, and appropriations of the District and Federal Governments

Depositors	Cost of repairs		
	Flat rate	Whole cost	Total
Plumbers.....	\$25,800.02		\$25,800.02
Public service corporations.....	133,165.63	\$183,713.35	316,878.98
Individual depositors.....	26,856.59		26,856.59
Various appropriations of the District and Federal Governments.....	86,860.15	132,321.85	219,182.00
Total.....	272,772.39	316,035.20	588,807.59

Character of pavement repaired	Square yards	
	Flat rate	Whole cost
Sheet asphalt.....	\$9,204.73	\$16,564.79
Vitrified block.....	1,187.24	3,356.63
Asphalt block.....	1,404.84	7,127.76
Granite block.....	776.65	2,367.34
Cobble.....	134.30	1,008.20
Cement sidewalks.....	50,134.67	4,684.73
Macadam.....	1,925.51	453.77
Concrete roadways.....	4,480.45	10,300.13
Scoria.....	10.99	7.83
Durax.....	35.54	2,270.90
Brick sidewalks.....	6,175.72	24,586.35
Total.....	75,470.64	72,728.43

TABLES B AND C.—Character and extent of roadway pavements, July 1, 1927

## SQUARE YARDS

Section	Asphalt	Asphaltic surface	Asphalt block	Asphaltic concrete, concrete base	Asphaltic concrete, stone base	Cement concrete	Durax block (small granite block)	Granite and rubble
Northwest, city.....	1,834,724	11,607	21,810	9,674	6,372	28,095	12,294	76,295
Northeast, city.....	435,097		192,373	3,127		17,017		17,601
Southwest, city.....	325,186	4,870	229,094	8,019	4,082	9,728		20,449
Southeast, city.....	291,550	40,732	40,436	13,535		11,148		103,458
Georgetown.....	147,795	3,541	20,147	1,738	905	4,118	19,385	26,951
Northwest, suburban.....	421,848	103,722	83,206	25,855	24,501	604,599		
Northeast, suburban.....	90,255	21,882	6,925	14,354		200,539		
Southeast, suburban.....	21,203	35,532			3,049	41,106		4,102
Total.....	3,567,658	221,886	593,991	76,302	38,909	916,350	31,679	248,856

Section	Vitrified block	Cobble	Macadam (estimated)	Gutters on asphalt streets	Gutters on asphaltic concrete streets	Pavements maintained by street railways	Total
Northwest, city.....	9,855	5,763	16,407	120,493	1,128	287,110	2,441,627
Northeast, city.....	3,882		26,076	34,689	231	69,316	799,409
Southwest, city.....		13,122	35,911	23,171	898	48,328	722,858
Southeast, city.....	3,138	7,070	10,136	24,927	1,254	56,820	604,204
Georgetown.....	515	10,419	3,000	6,351	374	35,325	280,564
Northwest, suburban.....			1,156,754	31,706	4,517	79,771	2,536,479
Northeast, suburban.....			311,676	6,591	1,049	25,356	678,627
Southeast, suburban.....			38,741	6,385	272	14,781	165,171
Total.....	17,390	36,374	1,598,701	254,313	9,723	616,807	8,228,939

TABLES B AND C.—*Character and extent of roadway pavements, July 1, 1927—Continued*

## MILEAGE

Section	Asphalt	Asphaltic surface	Asphalt block	Asphaltic concrete, concrete base	Asphaltic concrete, stone base	Cement concrete	Durax block (small granite block)
Northwest, city.....	94.25	0.53	1.34	0.51	0.24	1.52	0.30
Northeast, city.....	22.89		8.48	.19		1.14	
Southeast, city.....	17.22	.23	11.47	.43	.17	.55	
Southwest, city.....	15.81	2.04	2.37	.68		.36	
Georgetown.....	9.39	.13	1.16	.19	.06	.23	.83
Northwest, suburban.....	23.41	6.92	4.49	1.31	1.48	32.49	
Northeast, suburban.....	5.64	1.26	.63	.97		10.63	
Southeast, suburban.....	1.83	2.92			.21	2.16	
Total.....	190.44	14.03	29.94	4.28	2.16	49.08	1.13

Section	Granite and rubble	Vitrified block	Cobble	Macadam (estimated)	Gravel and unimproved (estimated)	Total
Northwest, city.....	4.56	0.50	0.08	0.66	2.23	106.72
Northeast, city.....	.87	.24		1.35	2.91	38.07
Southeast, city.....	1.21		.66	1.60	4.07	37.61
Southwest, city.....	5.41	.27	.30	.49	2.62	30.35
Georgetown.....	1.99	.03	.48	.06	.53	15.08
Northwest, suburban.....				74.77	67.07	211.94
Northeast, suburban.....				25.39	56.14	100.66
Southeast, suburban.....	.21			3.09	39.75	50.17
Total.....	14.25	1.04	1.52	107.41	175.32	590.60

## REPORT OF THE SURVEYOR

WASHINGTON, D. C., August 19, 1927.

Sir: I herewith submit report of the operations of the office of the Surveyor of the District of Columbia for the year ended June 30, 1927.

As a matter of convenience the work of this office is divided in all annual reports into three classes, classified as follows:

1. Work performed for private parties for which fees are charged, as prescribed by order of the Commissioners; and where not covered by schedule of fees, an estimate is made covering the actual cost of the work.

2. Work for the various departments of the District and Federal Government, for which no fees are charged.

3. Work done in connection with condemnation cases for the opening of streets and alleys, parks, school and playground sites, etc.

Following is a statement showing in detail the work performed under the three classes:

(1) *Work for private parties.*—Survey work: Number of surveys made, 2,300; number of individual lots staked on orders for surveys, 4,059; certificates (or plats) of survey issued, 2,300; surveys to locate foundations of buildings in course of erection, 1,930; number of buildings located with relation to property lines, 790; large tracts sur-



veyed, subdivided, and recorded, 8; surveys made of unsubdivided tracts, 128.

Subdivisions: Subdivision plats prepared (in duplicate), 453; subdivisions recorded, 423; total number of lots in subdivisions recorded, 4,396.

Plats issued in connection with permits: Plats made to accompany applications for building permits (commonly called "building plats"), 5,241; plats made under regulations covering zoning law, for the erection of garages, motors, etc., 633.

Miscellaneous plats: Plats of all kinds made up on orders of private parties, 8,763.

Estimates issued and feeds collected: Estimates of cost (issued in triplicate), 10,963; total of fees paid to collector of taxes, District of Columbia, for work done by surveyor's office, \$44,644.

(2) *Work for the District of Columbia and Federal Government.*—Number of surveys made, 69; plats recorded (condemnations, dedications, etc.), 114; plats recorded showing changes in the highway plan, 31; reports to building inspector concerning foundation walls in course of erection, 1,930; assessment and taxation plats recorded, 434.

(3) *Condemnation cases.*—Cases pending in court, 68; cases confirmed by court, 16; cases ordered by commissioners, but not yet filed, 11; total amount awarded as damages in condemnation cases, \$142,739.97; total amount assessed as benefits in condemnation cases, \$89,180.74.

*Summary of work for the District of Columbia.*—Total number of surveys made for the District of Columbia and private parties, 4,435; total of plats, public and private, including plats drawn in books, 11,686.

With this report is submitted a table showing a comparison of the work performed by this office during the past fiscal year and during the year previous.

#### REVISION OF HIGHWAY PLAN

During the past fiscal year \$1,500 was appropriated for the revision of the highway plan.

The work of revising the highway plan has become a matter of great activity, requiring much more study and a far greater amount of work than heretofore. In this work this office acts in cooperation with the National Capital Park and Planning Commission, but most of the plats and computations are made in this office. After final ratification by the commissioners and the National Capital Park and Planning Commission, all changes in the highway plan are recorded in this office.

To show the large increase in this class of work it will only be necessary to examine the number of plats showing these changes recorded during the past year with the number recorded during the year previous.

During the past fiscal year 31 cases were recorded, while during the previous year there were only 3 recorded.

It will be seen, therefore, how important this appropriation is and the necessity of funds to carry it on.

SURVEYS TO MARK ON THE GROUND THE PERMANENT SYSTEM OF  
HIGHWAYS

During the past fiscal year an appropriation of \$2,000 was made for this purpose. This appropriation has been made for the past several years, and is used to mark on the ground the streets laid down on the plan of the permanent system of highways, and such changes in the plan as they are made.

A great amount of field work has been done in this connection during the past year, and the work of course will have to be carried on in future as streets are planned and development continues.

## CONDEMNATIONS

This office is charged with the performance of all preliminary work in connection with condemnation cases to be filed in court.

This work, which is necessary before condemnation cases are filed in court, calls for expert engineering field work, accurate computations of lines and areas of land to be taken, the preparation of plats and descriptions of the land to be filed with the condemnation petition, and expert testimony of engineers in court.

Out of the 68 cases pending in court during the past year, 16 were confirmed, 17 were dismissed, and 35 are still pending.

Of the total number of cases pending in the courts, 44 were miscellaneous cases for the acquisition of streets, parks, etc., and 24 for the acquisition of land for alleys.

The damages awarded by the juries in the cases confirmed amounted to \$142,739.97. Out of this amount \$120,326.60 represents the amount of damages for the miscellaneous cases, and \$22,413.37 the amount of damages in the alley cases.

In addition to these cases a great many cases have been ordered by the commissioners but not filed prior to the past fiscal year. However, all of these cases have been prepared by this office, some of them being the largest cases ever prepared, all the work having been completed and maps drawn by this office during the past year, and it only remains for the cases to be filed in court by the corporation counsel, which will be done during the present fiscal year.

Some of the condemnation cases prepared by this office during the past year, but not yet filed, are as follows:

Widening Nichols Avenue between Good Hope Road and S Street SE.

Condemnation of Harvard Street and Adams Mill Road.

Land for playground purposes for Peabody School, square 814.

Widening Conduit Road.

Land for athletic field for Western High School, squares 1307 and S-1311.

Land for playground purposes for Morgan School, square 2558.

Widening Good Hope Road and Alabama Avenue.

Building restriction line on Mintwood Place, both sides, between Eighteenth Street and Columbia Road NW.

Calvert Street between Wisconsin Avenue and Glover Parkway NW.

Condemnation of Thirteenth, Fourteenth, Nicholson, Peabody, Quackenbos, Sheridan, Tuckerman, Van Buren Streets, Colorado,

Concord, and Luzon Avenues. Fort Drive and Piney Branch Road, in the section of the District lying south of the Walter Reed General Hospital grounds, between Georgia Avenue and Sixteenth Streets NW.

The widening of Conduit Road, the widening of Good Hope Road and Alabama Avenue, and the condemnation of streets south of the Walter Reed General Hospital grounds between Georgia Avenue and Sixteenth Street are all very large cases and required months of work in the preparation of plats, making necessary computations and writing descriptions in order to have the cases completed for filing in court.

The condemnation of streets south of the Walter Reed General Hospital is probably the largest condemnation case ever attempted by the District, and the cost of the condemnation proceeding will probably be over a million dollars.

During the past year many condemnation cases were filed for the acquisition of streets in accordance with the highway plan which it has been useless to attempt to condemn heretofore. This has been brought about by the passage of the act which provides that in the condemnation of streets in accordance with the highway plan, where damages and costs are found in excess of the benefits, the excess may be paid out of the revenues of the District of Columbia.

Some difficulty seems to have been experienced during the past year in prosecuting some of the condemnation cases to a satisfactory conclusion, due to dismissal by the court on some mere technicality, which it seems might be corrected by legislation. It seems to be getting more and more difficult to successfully prosecute a condemnation case so that it may reach the final stages in the proceeding where it may be finally ratified and confirmed on account of some unimportant question raised by objecting property owners, which the court, according to existing law, must take cognizance.

This not only makes these cases doubly expensive on account of the necessity of refiling the cases in court but it causes great inconvenience to the property owners and to the general public and retards needed improvement and creates waste of funds.

It is believed a study of this question should be made with a view of determining whether some remedial legislation can not be suggested which will enable the District to successfully prosecute these condemnation cases without danger of defeat in the courts on account of unimportant and technical questions being raised by some objecting party.

#### CONDEMNATION OF SMALL PARK AREAS

An appropriation of \$12,500 was made the past year for the purpose of acquiring small park areas at the intersections of streets.

It is believed that a great deal more money should be provided for this purpose, as it is possible with such a small amount to secure very few of these important park sites. It is customary with such a small appropriation to file only one case a year, while there are a great many important sites which should be acquired. There is always danger of improvements being erected which will prevent their acquisition, and it is hoped that some means can be devised whereby more money can be obtained for this important purpose.

The case filed during the past year was for the acquisition of squares 3141 and 3216. One of these, square 3141, was completed and acquired, but the other had to be discontinued on account of lack of funds from the appropriation to pay the award. A smaller site has been selected for acquisition, square 3346, and the case filed, and it is hoped that this can be acquired with the amount remaining out of the appropriation.

A table showing in detail the condemnation cases pending in court, the cases filed, and the cases confirmed during the past fiscal year, giving the amount awarded as damages and the amount assessed as benefits in each case is on file in this office.

#### CLOSING OLD ROADS

Under the law permitting the closing of any part of a street, road, or highway rendered useless and unnecessary by reason of the opening of other streets in accordance with the highway plan, upon the consent of the property owners abutting on the street to be closed, many portions of roads and highways have been closed during the past year to permit of development by the property owners.

The following roads or streets have been closed under this law:

Woodley Road, south side, at Twenty-eighth Street NW.

Old Broad Branch Road between Thirty-second and Jocelyn Streets NW.

Part of Dahlgren Circle at Twelfth and Douglas Streets NE.

Military Road at Connecticut Avenue and Davenport Street NW.

Shepherd Road between Eighth and Madison Streets NW.

Military Road (Grant Road) between Thirty-second and Davenport Streets NW.

Branch Avenue north of the District line.

"A" Road between Colorado Avenue and Montague Street NW.

Road through square 2644.

#### STREET EXTENSIONS

Following is a list of streets acquired by condemnation or dedication which have been placed on the record books of this office during the past fiscal year:

Fourth Street (widening) at Blair Road and Cedar Street NW.

Thirty-fourth Street south of Benning Road NE.

River Road (widening) west of Wisconsin Avenue.

Ellicott Street east of Reno Road NW.

Glover Driveway between Forty-third and Hawthorne Streets NW.

Kalmia Road (widening) west of Orchid Street NW.

Cortland Place east of Woodley Road NW.

Thirteenth Place SE., running northeasterly from Baltimore & Ohio R. R.

Twenty-fifth Street (Naylor Road) widening north of Good Hope Road SE.

North Dakota Avenue and Peabody Street, west of Blair Road NW.

Monroe Street, west side, between Eleventh and Thirteenth Streets NW. (establishment of building restriction line).

Burlington Place between Forty-fourth and Forty-sixth Streets NW.

First Place between Longfellow and Madison Streets NW.

Seventh Street between Peabody and Quackenbos Streets NW.

Erie Street between Seventeenth Street and Morris Road SE.

Georgia Avenue (widening) between Fairmont Street and Gresham Place.

River Road (widening) south of Brandywine Street NW.

Fifteenth Street between Euclid and Fuller Streets NW. (establishment of building restriction line).

Ellicott Street east of Reno Road.

Underwood Street between Luzon Avenue and Sixteenth Street NW.

L'Enfant Square (widening) between Minnesota Avenue and Baltimore & Ohio R. R. and establishment of building restriction line.

"A" Road (widening) between Seventeenth Street and Military Road NW.

Taylor Street east of Michigan Avenue NE.

Western Avenue (widening) northeast of Massachusetts Avenue.

Van Ness Street east of Wisconsin Avenue NW.

Yuma Street west of Thirty-sixth Street NW.

Eighth Street (widening) south of Marietta Place NW.

Eighteenth Place between C and D Streets NE.

C Street (widening) between Seventeenth and Eighteenth Streets and west of Nineteenth Street NE.

Brandywine Street between Thirty-eighth Street and Grant Road and between Fortieth Street and Wisconsin Avenue NW.

Fortieth and Forty-first Streets (widening) north of Brandywine Street NW.

Thirty-second Street between Military Road and Davenport Street NW.

Garrison Street between Thirty-fourth and Thirty-sixth Streets NW.

Porter Street between Klinge Road and Connecticut Avenue NW.

Forty-third Place between Albemarle Street and Murdock Mill Road NW.

Alton Place between Forty-fourth and Forty-sixth Streets NW.

Sixth Street south of Girard Street NW.

Girard Street between Fifth and Sixth Streets NW.

Branch Avenue north of the District line.

Cortland Place and Devonshire Place between Twenty-eighth Street and Connecticut Avenue NW.

Rittenhouse Street between Utah Avenue and Thirty-second Street NW. (establishment of building restriction line).

Parkside Drive, Beach Drive, East Beach Drive, and North Portal Drive northeast of Rock Creek Park and west of Sixteenth Street.

River Road (widening) south of Brandywine Street NW.

Forty-second Street south of Brandywine Street NW.

Forty-third Street between Albemarle and Brandywine Street NW.

Brandywine Street at Forty-second Street NW.

Butterworth Place between Forty-second and Forty-third Streets NW.

Twenty-eighth Street (widening) south of Texas Avenue SE.

Park Drive between Twenty-eighth Street and Thirty-first Street SE.

Linnean Avenue northeasterly from Davenport Street NW.

Fourteenth Street south of Tewkesbury Place NW.

Thirteenth Street south of Tuckerman Street NW.

Calvert Street west of Thirty-ninth Street NW.

Thirty-fourth Street between Clay and Eads Streets NE.

This report will show that, while there has been a decrease in certain classes of work by reason of decrease in building operations, other classes of work, such as street extensions, changes in the highway plan, zoning maps, etc., have been greater than the year previous, and this, with the enormous amount of work necessary on the large condemnation cases prepared, has kept the field and office force very busy during the past year, and I desire to acknowledge the efficiency, energy, and accuracy of the force of this office in doing the work necessary to be performed.

M. C. HAZEN, *Surveyor*.

To the ASSISTANT ENGINEER COMMISSIONER.

Table showing in detail work performed by surveyor's office, fiscal year 1926-27

	Fiscal year 1925-26	Fiscal year 1926-27
<b>FOR PRIVATE PARTIES</b>		
Individual lots or parts of lots surveyed in city and county.....	4, 846	4, 059
Certificates of survey issued covering one or more lots.....	2, 722	2, 300
Duplicates of above recorded in survey certificate books.....	2, 722	2, 300
Separate surveys made to verify walls.....	2, 522	1, 930
Postal-card reports concerning walls issued to owners.....	2, 522	1, 930
Individual buildings inspected as to location of walls.....	1, 494	790
Large tracts in county surveyed, subdivided, and recorded.....	35	8
Outline surveys in county of unsubdivided tracts.....	300	128
Subdivision plats prepared in duplicate.....	675	453
Duplicate subdivisions prepared for assessor.....	675	453
Subdivisions recorded.....	562	423
Total of individual new lots in subdivisions.....	3, 891	4, 396
Plats of one or more recorded lots to accompany applications for building permits (commonly called "building plats").....	5, 897	5, 241
Plats made up under regulations for garages, filling stations, etc.....	500	633
Estimates of cost issued in triplicate.....	12, 796	10, 963
Plats made up on order of private parties.....	10, 129	8, 763
Highway maps of the District of Columbia sold.....	303	280
Total of fees paid to collector of taxes by private parties.....	\$55, 179. 30	\$44, 644. 00
<b>FOR THE DISTRICT OF COLUMBIA</b>		
Surveys made for the District of Columbia.....	174	69
Plats recorded (condemnations, dedications, etc.).....	106	114
Reports concerning walls to building inspector.....	2, 522	1, 930
Assessment and taxation plats recorded.....	1, 448	434
<b>MISCELLANEOUS</b>		
Total of surveys for the District of Columbia and private parties.....	5, 753	4, 435
Total of plats, public and private, including plats drawn in books.....	15, 790	11, 686

## REPORT OF THE SUPERINTENDENT OF TREES AND PARKINGS

WASHINGTON, D. C., *August 17, 1927.*

SIR: I have the honor to submit my annual report of the operations of the trees and parkings division for the fiscal year ended June 30, 1927.

## TREES PLANTED

There were 2,093 young trees planted in their permanent positions on the streets during the fiscal year. An extra effort made during the year to extend the tree system along the streets in the suburbs and hitherto unplanted localities resulted in 1,749 being planted along many improved thoroughfares. Fifty sycamore trees were planted on both sides of Eleventh Street NW. between Pennsylvania Avenue and Massachusetts Avenue, 23 red-oak trees were planted on the east side of Connecticut Avenue NW. between K and Eighteenth Streets, and 17 red-oak trees on the west side of Connecticut Avenue NW. between K and M Streets to replace the trees that were removed in connection with the work of widening these streets. Two hundred and fifty-four trees were planted for the purpose of filling vacancies in the existing rows. These trees were all set at the curb line. No trees were planted in the parking between the inner edge of the sidewalk and the building line. The work of preparing the tree spaces for planting is vigorously prosecuted through such times of the year as it is found practicable to so distribute the force. Ordinarily, no holes are dug between May 1 and September 1, the men then being employed in cultivating young trees, mowing weeds, trimming and spraying trees.

The cost of planting all of the trees was paid from the appropriation for the trees and parking division. Thirty-four tree holes were prepared for planting by a real-estate promoter in his subdivision without any cost to the District of Columbia. This department furnished the trees, planted, and boxed them, the cost being paid from its appropriation.

The present nurseries have not produced a sufficient number of trees of the proper size to keep pace with the rapid growth of the city and its street improvements in the past several years. Our planting activities had to be curtailed last spring because two private nurseries failed to furnish the department with 750 trees after submitting their bids.

The sum of \$16,406.34 was expended for labor and material for tree planting along the streets during the year.

## TREES REMOVED

A total of 1,937 trees were removed during the year for various reasons. Of these, 247 were decayed and dangerous, 6 were to relieve excessive shade, 2 because they interfered with parking improvements, 355 for street improvements, 41 for driveways, 43 for alley improvements, 52 were destroyed by automobiles, 202 by storms, 16 interfered with vehicular traffic, 2 interfered with entrances to buildings, 2 because of close proximity to buildings, 27 interfered with building operations, 7 interfered with street lamps, 17 interfered with the development of curb trees, 5 interfered with the construction of sewers, 3 interfered with construction of water main, 20 to permit construction of a freight terminal. It was ascertained that 83 were killed by illuminating gas, 27 by salt water, 146 by abnormal moisture, 40 by being filled around, 13 by being girdled, 19 by drought, 5 by insects, 12 by oil, 6 by fire, and the death of 539 were unexplained. Of the total number removed 1,666 stood at the curb

line, 166 in the parking, 38 in the sidewalk, 34 in alleys, and 33 in roadways.

The cost of removing 1,394 trees was paid from the appropriation for this division, 412 from the appropriation for other departments, and 40 from whole cost deposits. Permission to remove 91 trees was granted private individuals. The cost of removing the trees paid from the trees and parking appropriation amounted to a total of \$7,488.42.

#### TRIMMING

Very little systematic trimming was undertaken during the year, but considerable attention was given by two comparatively small forces of men to many individual requests for trimming trees possessing objectionable or dangerous limbs and low limbs on young trees that interfered with pedestrians and vehicular traffic, etc. The request for miscellaneous trimming shows a steady increase each year, and it was necessary to increase the force engaged on this work. A total of 12,973 trees were trimmed during the year at a total cost of \$11,759.01.

In addition to the work performed on the individual requests mentioned above, the same force attended to the miscellaneous casualties to trees and tree boxes as reported by the police department. This casualty work was performed at a total cost of \$684.25.

The sum of \$2,350.38 was expended in removing broken limbs, trees, etc., from the streets caused by storms.

#### TREES SPRAYED

The trees of this city suffer each year from the attacks of the elm-leaf beetle, the tussock moth, and the fall webworm. The spraying of the city trees with arsenate of lead has become an annual necessity in order to preserve their foliage. This department sprayed 51,233 trees during the year for the extermination of leaf-eating insects. The sum of \$3,672.85 was spent to spray the trees on public space. This amount includes the sum of \$504.25 for arsenate of lead that was purchased during the fiscal year 1926. The amount expended from the appropriation for 1927 was \$3,168.60.

#### TREE SURGERY

The cavities in 4 elm, 7 Norway maple, 7 silver maple, 2 sugar maple, and 1 linden tree standing at the curb line were treated and filled with cement. The sum of \$187.14 was expended for labor and material on this work.

#### CULTIVATING YOUNG TREES, MOWING PARKINGS, AND REMOVING TREE BOXES

Many complaints are received during the year before the weeds can be removed from the public parking and tree space along the streets, especially in the outlying districts. The sum of \$2,552.85 was expended on this work during the fiscal year.

A total of 12,780 young trees were cultivated during the year at a total cost of \$2,382.75. A total of 334 wooden tree boxes and 39



iron tree guards were removed during the year from trees which no longer required their protection. The cost of this work was \$185.46. The sum of \$129.06 was expended in miscellaneous repairs to tree boxes.

#### NURSERIES

The Fort Dupont and Poplar Point nurseries are well stocked with small trees of the varieties considered best for street planting. The majority of these trees are too small to transplant to their permanent position on the streets but will be available in a few years. It will undoubtedly be necessary to purchase some trees for street planting during the fiscal year 1928 in order to keep up with the rapid street improvements that are being made.

This department transplanted 620 willow oak, 652 red oak, 195 pin oak, and 127 elm trees to the nursery rows at Fort Dupont nursery, and 776 linden, 473 pin oak, and 135 willow oak trees to the nursery rows at Poplar Point nursery last spring. It will be several years before they are suitable for street planting. It will be necessary to cultivate and prune them each year in order to have good healthy specimens at the time they are planted along the streets.

The sum of \$10,765.74 was expended for labor and teams for nursery work.

#### REGULATION OF TERRACES AND RETAINING WALLS

This office issued 1,017 permits affecting the grades of terraces in connection with building operations in the residential districts during the year. We have had very little trouble with builders relative to maintaining uniform parking grades. The height of 611 retaining walls to be constructed on public space was passed on by this office.

#### GENERAL COMMENT

There are more trees on the streets of Washington at this time than ever in the history of the city, and their general condition is good. However, a survey of the city discloses that considerable damage has been done to trees in connection with street improvements. It is realized that it is almost impossible to carry on the work of laying mains, constructing conduits, and resetting curbs without some damage being done to the roots. Nevertheless, more care should be exercised by contractors engaged on street work.

#### SUMMARY

Curb trees on the streets at the close of the fiscal year 1926.....	104, 696
Net increase in curb trees during the fiscal year 1927.....	427

Curb trees on the streets at the close of fiscal year 1927.....	105, 123
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Very respectfully,

C. LANHAM,  
*Superintendent Trees and Parking.*

To the ASSISTANT ENGINEER COMMISSIONER.

## REPORT OF THE INSPECTOR OF BUILDINGS

WASHINGTON, D. C., August 5, 1927.

SIR: I submit herewith the annual report of the building inspection division for the fiscal year ended June 30, 1927.

The report includes no record of building operations conducted by the Federal Government or by the District of Columbia government.

*Statement of permits issued from July 1, 1926, to June 30, 1927*

	Number	Value		Number	Value
Brick:			Concrete—Continued		
Dwellings.....	1,819	\$12,458,290	Stores.....	4	\$23,700
Repairs.....	1,789	2,633,550	Warehouses.....	2	31,500
Apartments.....	109	11,641,800	Garages.....	123	55,670
Garages.....	316	1,680,555	Gas station.....	1	3,000
Stores.....	118	1,021,250	Office building.....	1	4,000,000
Shops.....	7	126,250	Sheds.....	6	48,325
Gas stations.....	14	116,820	Tile:		
Churches.....	6	436,000	Dwellings.....	18	207,480
Theater.....	1	60,000	Repairs.....	15	27,500
Print shop.....	1	900,000	Garages.....	25	11,125
Factories.....	3	88,500	Gas station.....	1	1,500
Office buildings.....	20	3,928,110	Charitable home.....	1	38,000
Warehouses.....	13	97,600	Warehouses.....	2	100,000
Institutional homes.....	5	310,000	Office.....	1	2,000
Hotels.....	5	2,020,000	Metal:		
Laundries.....	3	67,000	Garages.....	1,317	210,580
Ice house.....	1	10,500	Sheds.....	48	32,855
Educational building.....	1	34,000	Gas holder.....	1	115,500
Substations.....	2	19,000	Frame:		
Bakery.....	1	160,000	Dwellings.....	516	2,845,440
Gas booster.....	1	4,000	Repairs.....	663	288,935
Gymnasium.....	1	88,000	Garages.....	275	81,585
Sheds.....	4	6,200	Greenhouse.....	1	6,680
Stone:			Churches.....	2	15,500
Dwellings.....	48	997,900	Sheds.....	38	14,415
Repairs.....	18	30,450	Machinery:		
Church.....	1	75,000	Motors.....	577	245,920
Art gallery.....	1	1,000,000	Elevators.....	141	730,240
Garages.....	3	2,700	Boilers.....	7	11,200
Concrete:			Total.....	8,211	49,776,865
Dwellings.....	76	541,400			
Repairs.....	38	73,340			

## Distribution of improvements in sections

	Buildings	Repairs, etc.
Northeast.....	\$5,424,240	\$674,120
Southeast.....	2,175,690	197,540
Northwest.....	37,456,940	3,404,910
Southwest.....	358,300	85,125
	45,415,170	4,361,695
	4,361,695	
	49,776,865	

## Comparative statement for years 1926 and 1927

	Repairs, etc.	New buildings	Dwell- ings	Apart- ments	Business buildings
1927.....	4,926	3,285	2,477	109	699
1926.....	5,520	5,066	4,135	173	758
Decrease.....	594	1,781	1,658	64	59

*Estimated number of buildings in the District of Columbia<sup>1</sup>*

	Brick	Stone	Concrete	Tile	Frame
1927, erected.....	2,451	53	214	48	519
1927, razed.....	195				217
Add total as of 1926.....	2,256	53	214	48	306
	83,762	86	669	567	31,130
Grand total.....	86,018	139	883	615	31,436

<sup>1</sup> This estimate is necessarily broad, data for an accurate estimate not being available.

*Comparative statement for past six years*

Year	Repairs, etc.	New buildings	Dwell- ings	Apart- ments	Business buildings	Number of permits	Value
1922.....	5,323	3,510	2,397	60	1,053	10,301	\$36,223,089
1923.....	5,938	3,478	2,460	81	937	12,191	57,690,038
1924.....	5,356	3,012	2,079	81	852	11,446	39,403,207
1925.....	5,584	5,319	4,129	120	1,078	11,993	62,862,980
1926.....	5,520	5,066	4,135	173	758	11,574	63,599,280
1927.....	4,926	3,285	2,477	109	699	10,798	49,776,865

From the foregoing figures it can be seen that building activities suffered a decrease of \$13,822,415 as compared with the figure given for last year. While the decrease is evident in so many dollars of construction, yet from an administrative and inspectional standpoint the work has remained the same, if not increased. Building operations for the fiscal years 1925 and 1926 were considered abnormal; and operations during the past fiscal year, \$49,776,865, compared with the figure of 1924, \$39,403,207, which is considered normal, show an increase of \$10,373,658.

The figures showing the number of permits issued for the present fiscal year, as compared with that of the previous one, accentuate the fact that the vast amount of operations was of the remodeling or repair type, rather than the larger project. The number of permits issued for the past fiscal year was 11,574 compared with 10,798 issued the present fiscal year, a decrease of only 776.

## HOUSING ACCOMMODATIONS

There were issued during this fiscal year permits for 2,397 one-family houses, a decrease of 1,365 compared with the figure of last year; and 26 two-family houses, a decrease of 66 compared with the figure of last year; and one three-family house. Permits for the 109 apartment houses disclosed that they would be built to accommodate 2,930 families; a computation of the number of families to be accommodated in the 173 apartments for which permits were procured during the previous fiscal year, 4,539; and the figures given for the present year reveal that the average for each apartment is the same, approximately 26. This year saw the issuance of permits for five hotels, as compared with three of the previous year, these hotels to accommodate 641 families.

## SIGNS

During the past fiscal year permits for 2,083 signs were issued (a decrease of 115 compared with that of 1926), 1,542 of which were 50

square feet or under; 496, 51 to 100 square feet; and 45 exceeded the maximum limit of 100 square feet as allowed under the provisions of the zoning regulations, for which approval of the commissioners was necessary prior to issuance of permits. The materials of which these signs were made consisted of wood, metal, canvas, and many combinations of wood and metal, as well as being painted on the wall. There were 1,994 signs, the materials of which consisted of wood, metal, or paint; there were 36 signs of canvas material and 1 roof sign. Among the 42 signs having miscellaneous material, the great majority consisted of glass (barber poles) and brass or bronze.

Of particular interest is the fact that the sign regulations have recently been amended, the increase in the maximum size of signs according to the area of the frontage walls of a building being of particular note.

#### ELEVATOR BUREAU

On July 1, 1926, this bureau had added to its personnel the services of another inspector, totaling in number, five. During the past fiscal year, 2,888 triyearly inspections were made by four inspectors, as compared with 1,939 of the previous year made by three, which shows an average of 722 elevators per inspector as compared with 646 elevators per inspector for the year 1926, an increase of 76 each. Our other inspector is entrusted with the follow-up of repairs (ordered by the other four) complaints, inspections of elevators as to compliance with the new elevator code, and the testing and approving of 98 new installations, 32 of which were passenger elevators, and 66 being freight elevators.

Checks totaling \$3,325 were received, paying for 2,660 inspections, compared with last year's figures of \$2,295 and 1,836, respectively, an increase of \$1,030 and 824, respectively, the cost of inspection being \$1.25 per elevator. Mention may be made at this time that this office, through the cooperation of the corporation counsel, is waging a war on the delinquents in an effort to collect past due inspectional fees, and is making rapid strides toward such a goal.

During the fiscal year 1,279 licenses for the operation of elevators were issued, compared with 821 issued during the year 1926, an increase of 458. This increase is due in a large measure to the efforts of the police department in cooperation with this division to have all operators of elevators obtain a license as required by the code.

Of particular note is the number of Government buildings in which elevators are located, inspections of which are made by this bureau. There are 32 Government buildings containing 80 elevators, being inspected triyearly. While this office is without authority to enforce its recommendations and suggestions relative to elevator equipment in the Government buildings, yet in all cases compliance with the notices of this office is effected.

Unfortunately, three accidents occurred on elevators coming under the inspection of this bureau during the past year, a decrease of nine compared with the figure of 1926, of which two occurred on passenger elevators. None of these accidents proved fatal, four persons having been injured. Examination and investigation showed that

in but one instance was the accident due to faulty mechanism. The decrease in elevator accidents is due, in a large measure, no doubt, to the increased use of safety appliances.

On July 1, 1925, the new elevator code of the District of Columbia was promulgated by the commissioners, which provided among others, that installations then in existence were to be equipped or altered in certain respects to comply therewith, and provided more stringent requirements for new installations. The alterations and equipment to be applied to old installations were to be completed within two years from date of promulgation of the regulations, namely, July 1, 1927. Because of the impossibility of inspecting all the installations in the district on or before July 1, 1925, thus giving the owner two full years in which to make the changes, question was raised whether this office would be justified in granting an extension of two years from date of notice, rather than insisting upon compliance by July 1, 1927. The matter was referred to the corporation counsel, who decided that an equitable interpretation might be made which would permit the allotment of time to be made from the date of notice. It is gratifying to mention, however, that the owners in many instances have completed the alterations or modifications necessary to their elevator equipment, and that this phase of the work is rapidly progressing toward completion.

#### OCCUPANCY PERMITS

During the fiscal year 1927 there were issued 2,871 certificates of occupancy permitting the use of a building for commercial purposes as provided for under the zoning regulations, an increase of 269 compared with the figure of last year of 2,602. Of the total issued, 2,616 were for a conforming use in the particular zone, while 255 enterprises were conducted in a nonconforming district.

A better understanding of the foregoing may be had from the following figures: Permits for a first commercial use in a second commercial zone, 264; permits for a second commercial use in a second commercial zone, 103; permits for a first commercial use in a residential zone, 197; permits for a first commercial use in a first commercial zone, 2,138; permits for a second commercial use in a first commercial zone, 31; permits for a residential use in a residential zone, 85; permits for an industrial use in an industrial zone, 19; permit for an industrial use in a residential zone, 1; permits for a second commercial use in a residential zone, 26; permits for a first commercial use in an industrial zone, 7.

#### FIELD INSPECTORS, REINFORCED CONCRETE INSPECTORS, AND STEEL INSPECTORS

During the fiscal year of which this report has reference to, there were 50,173 inspections made by all the inspectors in this bureau, 39,243 of which were made by the field inspectors of which there are 12, 6,552 of which were made by the reinforced concrete inspectors, there being three inspectors, and 4,378 of which were made by the two steel inspectors.

## FIRE ESCAPES, FIRE EQUIPMENT, AND ENTERTAINMENTS

During the past fiscal year 171 inspections were made of public halls, theaters, and hotels, these inspections paying fees in the sum of \$810. Inspections for one-night entertainments were 24, \$24 being paid in fees.

The checking of plans relative to fire equipment for new buildings numbered 164, \$1,640 being paid in fees. Plans checked as to layout of electrical fixtures numbered 236, no fee being charged for this service.

There were 2,720 inspections made of new and old apartments and buildings as to the necessity of providing fire equipment to comply with the fire escape law, the source of complaint originating in most instances with the fire department. Following these inspections, 192 commissioners' notices were prepared, forwarded for approval by the commissioners, and served, to install certain fire equipment. Approximately 600 letters were prepared and mailed dealing with phases within the jurisdiction of this bureau. The total number of inspections of this bureau and the fees collected were 3,315 and \$2,474, respectively, an increase in the number of inspections of 1,045, with a decrease of \$67 in the amount of fees collected, compared with figures given for the previous year.

## COMPLAINT DEPARTMENT

A total of approximately 4,400 complaints were received in this department, approximately 300 coming from the police department, 3,000 from the health department, 100 from the plumbing department, while the other 1,000 came through such sources as the telephone, mail, and personal application. In addition, numerous instances of defective conditions of buildings were discovered by the inspectors in the field. The majority of the complaints pertained to dilapidated sheds, porches, steps, floors, and falling plaster. Approximately 4,000 letters were written and served upon the owner or agent to correct the condition complained of and any other danger found upon investigation. Of this number, practically all notices were complied with, although in some cases second and third notices were served before compliance was effected. In very few instances was reference to the corporation counsel necessary.

It is difficult to appreciate the vast amount of work done by this department and the service rendered to the public. Each complaint must be carefully investigated, some of which are merely the result of neighborly quarrels, and notice prepared where conditions warrant advising the owner or agent of the necessity for repairing or removing a certain danger or nuisance. After the allotted time in which to effect compliance with the notice served another inspection must be made to ascertain whether the condition has been remedied, and if so to what extent. In many cases a second and sometimes a third notice as well as the resultant follow-ups are necessary before a dangerous condition will be remedied, and, as stated, in but few instances is it necessary to resort to court action.

## FEES COLLECTED, ALLOTMENTS, AND EXPENDITURES

The building-inspection division caused to be paid into the United States Treasury through the collector of taxes, during the fiscal year just ended, the sum of \$74,615.25 in fees, for permits, licenses, etc.

The appropriation for salaries was \$98,540, the expenditure for contingent and miscellaneous expenses was \$2,332.38, of which amount \$535 was expended for street-car tokens to be used by the field inspectors not provided with an automobile allowance. The expenditure for motor vehicles allowed nine inspectors totalled \$2,538, a total expenditure, as can be seen from the foregoing figures, of \$103,410.38.

Added to the pay roll of this department during the fiscal year in question were seven appointees, five inspectors and two clerks; also, the personnel of the permit clerk's office was placed upon the roll of this department, as well as the inspector for the board for the condemnation of insanitary buildings.

Because of certain reallocations of various positions in the department, and the inability to obtain an additional appropriation to the salaries allotment, it was necessary that each employee take, on an average, four days leave without pay during the latter part of this fiscal year in order to keep within the appropriated amount.

## PLAN EXAMINERS

Among the larger building projects for which plans have been submitted and approval given by this division for the issuance of permit are the 14-story theater and office building for the National Press Club at Fourteenth and F Streets; a 9-story addition to the Washington Loan & Trust Co.'s building at Ninth and F Streets; a 9-story bank building for the Second National Bank at 1331 G Street; an 11-story office building for John L. Barr at 910 Seventeenth Street; an 11-story apartment for the Wardman Construction Co. at 705 Eighteenth Street; the 10-story office building for the Acacia Mutual Life Association at 101 Indiana Avenue; a 9-story printing plant for the Wardman Construction Co. at 924 H Street; the 10-story office and bank building of the Washington Central Trust Co. at New York Avenue, G, and Fifteenth Streets; the 10-story garage building for the Capitol garage at 1320 New York Avenue, which has greatly relieved the congested downtown area of automobile parking by affording both day and night parking at a minimum charge; and the addition to the Corcoran Gallery of Art.

In addition to the foregoing, there were nine 8-story apartment houses, seventeen 5-story apartment houses, thirty-three 3 and 4 story apartment houses, as well as numerous churches, moving-picture theaters, industrial plants, garages, and semifireproof apartments of smaller size.

Of the larger projects now on file awaiting approval and issuance of permit are the 9-story addition to the Union Trust building at Fifteenth and H Streets, the church building for the Fourth Presbyterian Church at Thirteenth and Fairmont Streets, and the shop and warehouse building for the Washington Gas Light Co. at 1100 Twenty-ninth Street.

## THE SPECIAL INSPECTOR

I am pleased to report this year that the attitude of the building owner toward the provision of the building regulations, which requires the building owner to furnish a special inspector of construction for buildings involving more than 100 tons of structural steel or 20,000 square feet of concrete floor area, or buildings to be used for public assemblage, the charges for the service of this inspector to be paid by the building owner, is even less subject to criticism than during the previous year. Its continuance has proven that the benefits to be derived from such a service greatly exceed the cost of the charges of the inspector and insures the owner of a better-built and safer building than could be afforded by only municipal inspection.

Since the inception of this regulation but 34 persons have been found qualified to act in this capacity, although many have made application, and but three additional have been qualified within the last year.

Several meetings of the special inspectors have been called by the inspector of buildings, and the responsibility of their duties impressed upon them.

## ADVISORY COMMITTEE ON REVISION OF THE BUILDING CODE

Upon the recommendation of the advisory committee on revision of the building code a number of changes in the building code were adopted by the commissioners, many of which became effective recently. This committee is composed of many prominent architects and civil engineers of this city, of which the inspector of buildings is chairman.

I desire to take this opportunity to express my thanks and appreciation to the members of this committee for their untiring and gratuitous services rendered in an effort to make the building code of the District of Columbia one of the most complete and satisfactory codes in existence.

It is desired at this time to acknowledge the efficient and competent services rendered by the employees of this department during this period, the work having been performed in a prompt and satisfactory manner.

Respectfully submitted.

JOHN W. OEHMANN,  
*Inspector of Buildings.*

To the ASSISTANT ENGINEER COMMISSIONER.

## REPORT OF THE INSPECTOR OF PLUMBING

WASHINGTON, D. C., *September 1, 1927.*

Herewith is the annual report of the plumbing inspection division of the engineer department for the forty-fifth year since plumbing inspection was transformed from a section of the health office and made an independent bureau. During these 45 years the office remained an independent division of the engineer department with



the exception of two years, when it reported through the then superintendent of sewers, and about 12 years (in two separate periods) when it has reported through the inspector of buildings, as at present.

The work of this office has grown through the years, and its activities are tied up with so many different divisions and departments which have no bearing on matters of building construction that it is believed this office could operate more satisfactorily if it were again put on an independent basis. This would shorten the route of handling all official papers pertaining not only to the building office but all other offices throughout the building, by eliminating two transmittals through that office, thereby saving much time to the citizens.

#### INSPECTION WORK

The total number of inspections during the past year increased somewhat over the previous year, the field inspection work showing a 12 per cent increase, with a 4 per cent increase in the number of complaint cases handled. The increase really means more than the mere percentage, however, as much of this increase was in the newly sewered suburban developments, which took more time on the part of the inspector than if the inspections had been more closely located. The inspections on new plumbing construction work amounted to 28,125, and on old and remodeled work, repairs, etc., 5,384, making a total of 33,509 inspections on plumbing work under way. There were 25,557 inspections made on complaints referred to this office by the health department, police department, and surface division, and with special inspections and reinspections totaling 3,733, there were 29,290 inspections all told properly chargeable to complaint and investigation work as differentiated from plumbing inspection proper. This made a grand total of 62,799 inspections, an increase of 8 per cent over the total number made last year.

The average number of inspections made by the field force was more than 12 per day, and the largest number of inspections in any one day was 31, except in a few isolated instances of inspections on row houses.

Twenty-nine thousand two hundred and ninety complaint and investigation cases constituted practically one-half of the entire field work of the office. Practically one-half of these complaint cases had to do with leaky roofs, leaky sheet-metal gutters and rain leaders, damp cellar walls, and other matters not ordinarily classed as plumbing. Probably not more than 10 per cent of the complaint cases originated in this office.

#### OFFICE WORK

During the last year two inspectors have been assigned to the counter for receipt, approval and filing of plans, and there has been no complaint received of undue delay in the handling of such work. About 80 per cent of the correspondence, indexing, and filing (such work as is commonly termed office work) is made necessary on account of the complaint work handled, and the year closed with only about 600 pending complaint cases as against 1,600 at the beginning of the fiscal year.

## REGULATIONS

During the year a few minor changes were made in the regulations, all of them, with one exception, looking to the reduction in cost of plumbing without sacrifice of sanitary efficiency. This one exception had to do with the quality of brass pipe and fittings used for underground water-service pipe, and was made necessary on account of poor quality of material furnished under the old regulations. The regulations as now constituted comply fully with the national code recommended by the so-called Hoover committee of the Bureau of Standards, and which code, with variations to suit the local conditions, is now operative in 3 States and 70 cities throughout the United States and Canada. This national code approves and makes use of the wet vent system, by means of which a single vent pipe is made to take the place of three vent pipes under certain conditions, which system was developed by this office in 1914 and 1915, and it is interesting to note that there are now 30 cities in the country where it is the recognized standard of construction in simple dwellings and in hotels and apartment houses. This wet vent system not only simplifies and improves the venting of the fixtures in a normal bathroom, but, by reason of the manner in which the pipes are run, reduces the risk of stoppage to a minimum and constitutes a saving to the builder and householder of several dollars on every bathroom. The amount of money saved to the citizens of the District of Columbia since the wet vent system was first devised and put in use by this office amounts to hundreds of thousands of dollars.

In a similar manner the investigation of the possible undesirability of the main drain trap and its final elimination have saved the citizens a large sum.

These studies are carried out entirely aside and apart from the usual work of the office, and there are at the present time two lines of investigation under way which may result in increased efficiency and lowered cost.

## MUNICIPAL AND PUBLIC WORK

During the year this office assisted the municipal architect in laying out plumbing work on plans for schools, police stations, engine houses, and other public buildings and inspected the plumbing work as it went in, reporting the results to the municipal architect. It is believed that this close cooperation with that office resulted in a higher standard of workmanship being carried out.

This office also inspected on account of the sewer division all renewals of connections to relaid public sewers and greatly assisted that branch.

## PLUMBING BOARD

The plumbing board held 24 meetings and gave 82 individual examinations, but 27 of them being original candidates, the balance being given to those who had previously taken the examination one or more times; 3 original candidates passed, and 20 candidates passed who had taken the examination previously, the majority of them on the second examination and 1 each on the sixth, seventh, and eighth examination and 3 on the tenth.

There are now licensed master plumbers and gas fitters to the number of 283, about 249 of whom are actively engaged in business, the balance being those who prefer to hold their license in abeyance and work as journeymen plumbers, or who are employed by the Government, or who have engaged in other lines of business since receiving their original certificate. There are also 5 registered gas fitters.

#### PUBLIC CONVENIENCE STATIONS

There were four public convenience stations operated during the last year from 6 a. m. to midnight, with two shifts of attendants, each working 9 hours per day. According to the reports of the attendants, the station at Seventh Street and Pennsylvania Avenue NW. accommodated 5,593,000; that at Thirteen and one-half Street and Pennsylvania Avenue NW. accommodated 4,069,332; that at Ninth Street and New York Avenue NW. accommodated 4,386,120; that at Fifteenth Street and Maryland Avenue NE. accommodated 2,244,228, making a total number of nearly sixteen and one-half million times these stations were used by the citizens during the year. Twelve per cent of these users were women.

The cash receipts from the pay compartments, telephone commissions, public scales, etc., amounted to \$6,437.37, being very close to one-quarter of the cost of the operation of the stations, and only slightly less than the receipts for the previous year.

In addition to the four stations now in service, plans have been prepared for a new station at the northeast corner of Ninth and F Streets NW., a location where such a facility is very badly needed. There are also other locations where the desirability of a station has been indicated through accurate count kept of the passersby, receipt of complaints from the police department, and other sources of information. Such locations are at or near Fifteenth Street and New York Avenue, Georgetown, Anacostia, Fourteenth Street and Park Road, Seventh Street and Florida Avenue, etc., and it is urgently recommended that consideration be given to a plan of providing one such station each year until the city is equipped with these facilities at all needed points.

A. R. MCGONEGAL,  
*Inspector of Plumbing.*

To the INSPECTOR OF BUILDINGS.

#### REPORT OF PERMIT CLERK, ENGINEER DEPARTMENT

WASHINGTON, D. C., *August 9, 1927.*

SIR: Report of the operations of the permit clerk's office, giving the number of permits issued during the fiscal year ended June 30, 1927, is hereby submitted:

Water connections-----	3,521
Repairs-----	1,021
Specials (no fees)-----	124
Sewer connections-----	3,313
Repairs-----	680
Specials (no fees)-----	675

Gas connections .....	3,735
Repairs .....	448
Mains, lay and repair .....	492
Specials (no fees) .....	50
Electric connections and underground construction .....	3,984
Repairs .....	17
Conduits .....	986
Manholes, build and connect with sewers .....	534
Specials (no fees) .....	86
Air pipe lines, lay .....	4
Fences and hedges to inclose parkings .....	404
Guard stones, place in alleys .....	6
Pave parkings .....	146
Poles, erect, replace and remove (telegraph and telephone) .....	1,365
Tanks, install for fuel oil heating .....	393
Walls, erect retaining on parkings .....	611
Miscellaneous .....	27
Total .....	22,622
Permits for various kinds of work in public space .....	7,288
	29,910

Fees of \$1 were paid for 21,687 permits; permits for which no fees were charged, 7,288.

Record cards were made of all files referred to this office, permits issued, or reports made and files returned to the divisions having supervision of inspections of work for which the permits were issued.

All applications were filed according to location, and report of excavations in public space were made for necessary repairs.

H. M. WOODWARD,  
*Permit Clerk.*

To the INSPECTOR OF BUILDINGS.

### REPORT OF ELECTRICAL ENGINEER

The annual report of the operations of the electrical department for the fiscal year ended June 30, 1927, is respectfully submitted herewith.

#### FUNCTIONS

The work of the electrical department includes (a) the street lighting, electric and gas, designation lights and signs indicating location of fire-alarm boxes, etc., and street designation signs, in conjunction with street lighting; (b) the regulation of production (except by public utility companies), use and control of electricity for light, heat, and power purposes, the regulation of poles and overhead wires in public space, and (jointly with other divisions concerned) regulation of underground electrical constructions in public space; (c) consultation and advisory service to other departments and divisions of the District government.

#### STREET LIGHTING

The street-lighting system at the beginning of the fiscal year consisted of 23,386 lamps, 12,065 gas and 11,321 electric (892 arc, 10,429 incandescent); on June 30, 1927, there were in service 24,973 lamps,

11,136 gas and 13,837 electric (906 arc, 12,931 incandescent), a total net increase of 1,587 lamps, compared with 819 in 1926. Of the 5,218 lamps newly connected (gross, 3,631 having been discontinued), 889, about 17 per cent, were either designation lamps or of the next lowest powered gas or electric. This percentage compares with 35 for 1926 and 47 for 1925, reflecting further the much-needed trend toward larger and more efficient and economical units. The increase in aggregate candlepower of the street-lighting system is from, approximately, 2,844,000 to, approximately, 4,368,000, about 53 per cent, compared with about 30 per cent in the previous year. The increase in annual charges is, however, less than 25 per cent.

The approved project of improved lighting, somewhat advanced last year from the small beginning of the year before, has been carried forward to a very considerable extent, limited as yet, in general, to main traffic arteries and to streets being or about to be repaved. The resulting improvement of visibility is a certain comfort to those using the streets at night and I believe has contributed to decrease of hazard to life, limb, and property. The new installations certainly contribute to the beautification of the city. Some outstanding items of new project application are cited below. The keynote of the new project is "larger units, higher mounted"; a higher degree of average illumination and, as important, a more favorable angle of incidence of light to the eye, resulting in greater than a pro rata improvement of visibility and rendering practicable the use of inclosing glassware having a much higher value of light transmission. New designs of posts, or rather, taller members of the family of "Millet" posts, designed for Washington in 1911, are used on the more important thoroughfares, having mounting heights of from 15 to 20 feet, and all old posts displaced are replaced elsewhere after being supplied with an extension piece of 19 inches or 22 inches, increasing the length to mounting heights of  $12\frac{1}{4}$  to 14 feet, and fitting with the new "Washington type" glassware.

#### ARC LIGHTING

There has been an increase of 86 in the number of 6.6-ampere magnetic arc lamps to 517 and a decrease of 72 in the number of 4-ampere magnetite arc lamps to 389, a net increase of 14 in the total number of arc lamps to 906. The project contemplates the eventual displacing of all the less efficient 4-ampere lamps. The new type 6.6-ampere lamp with the Washington type glass is strikingly effective, and the color value of its light, contrasting with that of show windows, gives a better general effect, both aesthetically and practically, than the incandescent street lamp, in certain situations. It also has the highest efficiency. Lamps of this type, on ornamental posts, have been installed during the year on E Street NW., from Fifth to Thirteenth; on Eleventh Street NW., from Pennsylvania Avenue to G Street; on M Street NW., from Twenty-seventh to Thirty-sixth Streets; and on Wisconsin Avenue NW., from M Street to Volta Place; the last-named installation being replacement of 6.6-ampere old-style lamps on nonornamental poles—in fact, old 4-ampere lamps which had been temporarily converted to 6.6-ampere lamps.

## INCANDESCENT ELECTRIC LIGHTING

The number of incandescent lamps added (other than designation lamps) is 4,281 (361 of 1,000, 794 of 600, 1,181 of 400, 1,507 of 250, 57 of 100, and 381 of 60 candlepower); discontinued, 1,819 (2 of 1000, 32 of 600, 154 of 250, 1,167 of 100, and 464 of 60 candlepower), a net increase of 2,462 lamps. The total number of incandescents (other than designation lamps) connected June 30, 1927, was 12,615, compared with 10,153 at the close of the preceding year. The less economical 100-candlepower and 60-candlepower sizes have little place in the completed new project, and the number of those sizes combined was reduced during the year by 1,193, but new installations during the year of about 350 60-candlepower lamps was occasioned by the necessity of supplying lighting needs in outlying sections, not yet reached by the new system. Prominent items of the new incandescent lighting are: Massachusetts Avenue, both east and west, including incident squares; Rhode Island Avenue, entire, part with ornamental posts, part with lamps on existing center-line trolley poles; Connecticut Avenue, entire, except bridge over Rock Creek, including Farragut Square and Dupont Circle; Maryland Avenue NE., Second to Fifteenth Streets; K Street NW. and NE., Washington Circle to Florida Avenue; North Capitol Street from Florida to Michigan Avenues, part on ornamental posts, part on trolley poles at curbs; New Hampshire Avenue, Washington Circle to W Street; Bladensburg Road, incomplete; Columbia Road, entire; Eighteenth Street NW., B Street to Columbia Road; Eleventh Street SE., East Capitol Street to Anacostia Bridge; Florida Avenue, entire; F and G Streets NW., Seventeenth to Twenty-six Streets; Fifteenth and Seventeenth Streets NW., I Street to Florida Avenue; Thirty-fifth Street NW., Prospect to Wisconsin Avenue; Thirteenth Street NW., Massachusetts to Iowa Avenues; M Street from Canal Street SW. to Eighth Street SE.; Georgia Avenue, New Hampshire Avenue to District line, trolley poles; First Street NW., New York to Michigan Avenues; U Street NW., Ninth to Eighteenth Streets.

## MANTLE GAS LIGHTING

The number of gas lamps added was 757, discontinued 1,664, a net decrease of 907. The total gas lamps connected June 30, 1927, was 10,813 (10,040 60-candlepower, 773 120-candlepower) compared with 11,720 (10,811 60-candlepower, 909 120-candlepower) at the close of the preceding year. The 60-candlepower are single burner, the 120-candlepower double burner. In total mantles there were 11,586 connected June 30, 1927, compared with 12,629 at the close of the preceding fiscal year, a decrease of 1,043 mantles, compared with an increase of 565 and an increase of 624 mantles, in the two next preceding years.

## DESIGNATION LAMPS

The number of designation lamps added was 48 (all electric), discontinued 30 (22 gas, 8 electric), a net increase of 18, compared with a net decrease of 13 in the preceding year. The number of designation lamps connected June 30, 1927, was 639 (323 gas, 316

electric), compared with 621 (345 gas, 276 electric) at the close of the preceding year. The number of gas designation lamps has been reduced by 22, notwithstanding the total increase.

#### LIGHTING ALONG STEAM RAILROADS

The situation with respect to the claims against certain railroad companies for payment of sums expended for the lighting of streets, avenues, etc., adjacent to their several rights of way is changed to the extent that settlement out of court, on a basis approvable by the commissioners, seems in almost immediate prospect.

#### SIGNALS SYSTEM

The fire-alarm telegraph, police-patrol signal, and telephone systems have been operated and maintained, and each has expanded slightly to meet, in part at least, the growing requirements.

Fire-alarm boxes added to the system number 39 (33 public, 6 private), and 1 private box was discontinued, a net increase of 38, to a total in service June 30, 1927, of 915 (725 public, 190 private). Six existing boxes were changed from overhead to underground connection. Boxes connected underground were increased by 30, to a total of 778, and boxes connected by overhead wires were increased by 8, to a total of 137. A "private" box is one so located as to especially serve some special interest, not freely accessible to the public in general, and for which the cost of the immediate installation, including box, and of connection to nearest available circuit is borne by the specially interested party.

Although there is the gratifying increase in number of public boxes connected to the system of 33, compared with 33, 29, and 15 in the three preceding years, reference is invited to previous annual reports on serious need of more rapid extension of fire-alarm systems and boxes in the suburbs, and the recommendations therein repeated. The latest report of National Fire Prevention Association on survey of the city of Washington repeats the expressions in earlier reports of some years previous, commendatory as to the down-town section but severely critical as to the residential suburban area. There appears a tendency to assume that the prevalence of telephone connection renders more liberal distribution of fire alarm boxes unnecessary. Experience here and elsewhere does not sustain the position; notwithstanding special skill in translating messages from persons naturally excited, it frequently happens that a telephone call is not competent.

Careful and continuous inspection, maintenance, and repair service on the apparatus and connecting wire system has been maintained.

The number of fire alarms of all kinds received and transmitted through fire alarm headquarters was 3,494, compared with 3,983, 2,908, 2,711, and 2,826 in the four next preceding years; this includes 27 "additional" alarms (17 second, 8 third, 1 fourth, and 1 fifth) compared with 39 "additional" alarms (19 second, 11 third, 4 fourth, and 5 fifth) in the next preceding year. It also includes 379 false alarms, compared with 297, 227, 278, and 210 in the next four preceding years, the false box alarms (293) being above 20 per cent of the

total regular box alarms, (1,437) compared with approximately 13, 13, 16, and 13 per cent in the next four preceding years. The number of regular box alarms was 47 per cent of the total of box and local (exclusive of additional and false alarms), compared with 44, 46, 47, and 44 per cent in the next four preceding years. The provision for the future of additional fire alarm operators, as urged in previous reports, is extremely gratifying.

The number of police-patrol boxes added was 9, a net increase, compared with net increases of 8 and 12 in the two preceding years, making the total connected June 30, 1927, 518; of these, 422 are connected on underground, and 96 on overhead wires; compared with 509 (411 underground and 98 overhead) in the preceding year; 5 boxes were newly connected on underground wires and 5 on overhead wires; 1 box on underground wires was discontinued and 7 boxes were changed from overhead to underground connection; 5 boxes each previously connected to one station only were connected to two stations jointly; 20 boxes were changed as to connection from station No. 10 to the newly instituted station No. 13; 37 boxes were changed as to connection from the old substation of Seventh precinct in Tenleytown to the new station, No. 14, in same vicinity.

The needs of the police-patrol system as to extension are fairly well met annually, but reference is invited to previous reports on need of completing the modernizing of the system which was inaugurated in 1910, but is considerably short of being completed; the system of several of the precincts remains of the character obsolete in 1910; recommendations are repeated.

The number of telephones added, connected to the two private branch exchange switchboards under the jurisdiction of this department (the main District of Columbia P. B. X. "Main 6000" and the fire-alarm headquarters P. B. X. "Main 20"), was 29, and 23 were discontinued, a net increase of 6, compared with 19, 11, and 15 in next 3 preceding years. Connected to other District P. B. X. switchboards, nearly all of which are tie-line connected to "Main 6000" switchboard, 52 were added and 14 discontinued, and in the police-patrol service 9 were added. The number of telephones of the entire District of Columbia system was increased by 68 (compared with 64, 39, 75, and 97 in the next four preceding years), to a total connected June 30, 1927, of 1,796, exclusive of 29 portable sets in service, the property of the District of Columbia, used by the fire department and the electrical department.

The number of cells of storage battery in service on fire alarm, police patrol, and local circuits remains at 2,692, as last previously reported.

The distribution equipment for the composite signals system (fire alarm, police patrol, and telephone) has been affected by the installation of approximately 9.66 miles of underground cables, containing 292 m.les of conductor, and the withdrawal of approximately 0.95 mile of underground cable, containing 22.64 miles of conductor, the installation of approximately 0.95 mile of aerial cable, containing 47.35 miles of conductor, and the withdrawal of approximately 0.28 mile of aerial cable, containing 4.55 miles of conductor, a net increase of approximately 8.71 miles of underground cable containing 269.84



miles of conductor, and of approximately 0.66 mile of aerial cable containing 42.8 miles of conductor.

Grand total of composite distribution in service June 30, 1927, 210.83 miles cable; 8,257.28 miles conductor (8,067.51 miles underground, and 189.77 miles overhead).

This distribution system is inadequate to meet the demands of growth of the system and to provide reasonably safe reserve capacity for emergency.

The utilization of radio communication in certain municipal functions is being further considered.

#### POLES AND OVERHEAD WIRES

The regulation of the erection of poles, the stringing of overhead wires, and the maintenance of same in safe condition in the streets and other public spaces has been carried on in accordance with law and regulations.

The various wire-using companies have, during the year, newly erected 2,515 line and guy poles and 772 anchors; have moved, replaced, and reset 2,075 line and guy poles; and have taken down and removed 575 line and guy poles and 144 anchors, resulting in an aggregate net increase during the year of 1,940 poles (1,838 line and 102 guy), bringing the record total of electric poles on June 30, 1927, to 27,514 (25,806 line and 1,708 guy).

The list of pole owners comprises the United States, the District of Columbia, and 15 companies (the steam railroads being lumped as one); nearly 82 per cent of the poles are owned by and nearly 85 per cent of the year's increase is by two of the companies; the activities in erecting, taking down, moving, replacing, and resetting are confined to nine of the parties; none effected a decrease. The United States owns 298 and the District of Columbia 469 of the record poles, a combined Government ownership of less than 3 per cent of the total. The increase of total, 1,940, compares with 1,724, 794, and 1,097 of the next three preceding years, the exceptional activity being of the Potomac Electric Power Co.; the number of telephone poles in streets and avenues within "the prescribed area" has been decreased by 3, compared to increase by 1 in each of the two next preceding years. Increase of pole plant is somewhat checked by continued urging to joint use.

#### ELECTRIC INSPECTION—WIRES AND APPARATUS

In the operations under the act of Congress to regulate electric wiring in the District of Columbia, approved April 26, 1904, and the regulations thereunder—

The total number of permits issued in connection with the installation of wires and apparatus on private property was 14,144, compared with 15,267, 13,109, 9,495, 9,791, 8,029, and 6,217 in the next six preceding years.

Fees paid to the collector of taxes, \$24,372.55, compared with \$23,912, \$21,290, \$16,264, \$16,164, \$13,861, and \$11,626 in the next six preceding years.

Number of inspections recorded, 29,793, compared with 28,212, 25,418, 21,827, 22,817, 17,284, and 16,170 in the next six preceding years.

The electric-wiring regulations were revised during the year and now conform as closely as is desirable with "National Electrical Code," the country-wide standard for the installation of electric wires and apparatus; the code being designed to apply broadly to cities, towns, villages, and rural situations; municipal regulations, quite generally depart in some degree, by omission, addition, and alteration. A new schedule of fees for electric inspection, having the same minimum but with much more of graduation, went into effect on February 15, 1927. It is not practicable as yet to predict with any degree of accuracy the effect on annual receipt of fees. In the year of mixed situation there were approximately  $7\frac{1}{2}$  per cent less permits issued,  $5\frac{1}{2}$  per cent more inspections made, and  $1\frac{1}{4}$  per cent greater sum received in fees than in the prior fiscal year.

#### MISCELLANEOUS

The electrical department prepared plans and specifications for electric wiring, etc., in the Home for Aged and Infirm, Blue Plains, and Public Library, District of Columbia (catalogue room); and prepared specifications for electric wiring, etc., on Anacostia Bridge, draw span; Highway Bridge, draw span.

The department also cooperated with the municipal architect and with various heads of departments, determining most advantageous schedule of service rate on new electric service, canvassing for advantageous changes of schedule with change of use conditions in old installations, reading of meters, partial audit of vouchers, inspecting, testing, advice on purchases, etc.

WARREN B. HADLEY,  
*Electrical Engineer.*

To the ASSISTANT ENGINEER COMMISSIONER.

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#### REPORT OF THE MUNICIPAL ARCHITECT

WASHINGTON, D. C., *August 20, 1927.*

I have the honor to submit herewith the following report of the operations of the office of the municipal architect for the fiscal year ended June 30, 1927.

The work in the municipal architect's office consists of the preparation of plans, specifications, and superintendence of the construction of all buildings erected by the District of Columbia, consisting chiefly of schools, fire-engine houses, police stations, hospitals, and, in addition, the preparation of drawings and estimates for new buildings and repairs to existing buildings for the various municipal institutions, such as the Home for the Aged and Infirm at Blue Plains, the national training schools for both boys and girls and the new District Training School at Laurel, Md. Plans of all buildings are submitted to the Commission of Fine Arts for approval before work on contract plans is begun.

The repair shop, which is an adjunct to the municipal architect's office, is charged with the upkeep and repair work required for the various buildings of the school system as well as other municipal institutions. A separate report on the repair shop is forwarded herewith.

The development of plans and the construction of buildings for the reformatory and workhouse at Lorton, Va., also comes under this office, and the report of the engineer in charge is forwarded herewith.

The following buildings were under construction at the time of the submission of the last annual report and have since been completed:

Francis Junior High School, located on N Street, between Twenty-fourth and Twenty-fifth Streets NW.: By the act of June 7, 1924, \$5,000 was appropriated for the preparation of plans and specifications and the investigation of subsurface conditions of the site for a junior high school near Twenty-fourth and N Streets NW. By the act of March 3, 1925, \$175,000 was appropriated for beginning the construction of the John R. Francis Junior High School, and the commissioners were authorized to enter into contract or contracts for such building at a cost not to exceed \$475,000. By the act of May 10, 1926, an additional sum of \$267,500 was appropriated for the completion of the construction of this building. Contract was executed January 16, 1926, with the Charles H. Tompkins Co., for the construction of said building, including mechanical equipment, in the sum of \$414,240. The work was completed January 29, 1927, at a cost of \$422,240.11. The vacuum system of heating was installed. Cubic contents, 1,270,824 cubic feet. Cost per cubic foot, 33.2 cents.

Randall Junior High School, located on I Street, between Half and First Streets SW.: By the deficiency act of March 4, 1925, \$225,000 was appropriated for the construction of an eight-room addition to the Cardozo School, including a combination gymnasium and assembly hall, for use as the Randall Junior High School. Contract was executed January 29, 1926, with the King Lumber Co. of Charlottesville, Va., for the construction of said addition, combination assembly hall and gymnasium, and including mechanical equipment, in the sum of \$192,300. The work was completed January 28, 1927, at a cost of \$194,905.25. The vacuum system of heating was installed in this building. Cubic contents, 547,956 cubic feet. Cost per cubic foot, 25.5 cents.

Stuart Junior High School, located between E, F, Fourth, and Fifth Streets NE.: By the act of March 3, 1925, \$475,000 was appropriated for the construction of this building, with a combined assembly hall and gymnasium. Contract was executed March 10, 1926, with Parsons and Hyman for the construction of said building, including mechanical equipment, in the sum of \$455,000, and for clearing the site of old buildings, etc., in the sum of \$10,000. The work of clearing the site of old buildings, etc., was completed June 12, 1926, at the contract price. The work on the building was completed February 24, 1927, at a cost of \$455,747.36. The vacuum system of heating was installed. Cubic contents, 1,178,614 cubic feet. Cost per cubic foot, 38.6 cents.

Wing addition to the Macfarland Junior High School, located on Iowa Avenue, between Allison and Upshur Streets NW.: By the

act of March 3, 1925, \$125,000 was appropriated for the construction of a wing addition to this building. Advertisement for bids for the construction was made June 25, 1925, and in response but one bid was received, July 16, 1925, amounting to \$173,237. This bid was in excess of the amount appropriated, and was therefore rejected. By the deficiency act of March 3, 1926, an additional amount of \$55,000 was appropriated for the construction of the wing. Contract was executed April 6, 1926, with the Frank E. Hartman Co., Charlottesville, Va., for the construction of the wing, including mechanical equipment, in the sum of \$146,575. The work was completed March 10, 1927, at a cost of \$145,626. The vacuum system of heating was installed. Cubic contents, 447,104 cubic feet. Cost per cubic foot, 32.5 cents.

John Greenleaf Whittier School, located at the southeast corner of Sheridan and Fifth Streets NW.: By the act of March 3, 1925, \$140,000 was appropriated for the construction of an eight-room extensible building on the site at Fifth and Sheridan Streets NW. Bids for the construction of this building were received July 13, 1925, the lowest of said bids being in the sum of \$157,400. As this was in excess of the amount appropriated, the bids were rejected. Bids were again received September 15, 1925, the lowest being submitted by Skinker & Garrett, in the sum of \$159,000. As this bid also exceeded the amount of the appropriation, it was determined to omit certain portions of the work as shown on the proposal plans and to enter into contract for the construction of the remainder. Contract was therefore executed October 30, 1925, with Skinker & Garrett for the construction of the building, including mechanical equipment, with the exception of the portions of the work marked "Omitted" on the original drawings, namely, rooms for the library, the principal and teachers, the janitor, medical and dental clinics, the stairway and appurtenances thereto, and the entrance to proposed auditorium, in the sum of \$114,827.

It was provided in said contract that in the event Congress should appropriate sufficient funds for and authorize the completion, under this contract, of the work marked "Omitted" on the drawings, the Commissioners of the District of Columbia would have the right, prior to March 1, 1926, to direct the contractor to perform said work for the sum of \$44,173, or at the actual cost of labor and material plus 15 per cent thereof. By the deficiency act of March 3, 1926, an additional amount of \$27,500 was appropriated for the construction of this building. A supplementary agreement was executed March 24, 1926, with Skinker & Garrett for the performance of the work marked "Omitted" on the original drawings, in the sum of \$44,173, making the total amount of the contract price for the entire work \$159,000. The work was completed October 1, 1926, at a total cost of \$160,316.58. The vacuum system of heating was installed. Cubic contents, 382,860 cubic feet. Cost per cubic foot, 40.7 cents.

Job Barnard School, located at the southeast corner of Decatur and Fifth Streets NW.: By the act of March 3, 1925, \$140,000 was appropriated for the construction of an eight-room building on the site near Fifth and Buchanan Streets NW. Bids for the construction of this building were received September 15, 1925, the lowest bid being submitted by Skinker & Garrett, in amount, \$156,000. As this bid

exceeded the amount of the appropriation, it was determined to omit certain portions of the work as shown on the proposal plans and to enter into contract for the construction of the remainder. Contract was therefore executed October 30, 1925, with Skinker & Garrett, for the construction of the building, including mechanical equipment, with the exception of the portions of the work marked "Omitted" on the original drawings, namely, rooms for the library, the principal and teachers, the janitor, medical and dental clinics, the stairway and appurtenances thereto, and the entrance to proposed auditorium, in the sum of \$114,000. It was provided in said contract that in the event Congress should appropriate sufficient funds for and authorize the completion, under this contract, of the work marked "Omitted" on the drawings, the Commissioners of the District of Columbia would have the right, prior to March 1, 1926, to direct the contractor to perform said work for the sum of \$42,000, or at the actual cost of labor and material plus 15 per cent thereof. By the deficiency act of March 3, 1926, an additional amount of \$25,500 was appropriated for the construction of this building. A supplementary agreement was executed March 24, 1926, with Skinker & Garrett, for the performance of the work marked "Omitted" on the original drawings, in the sum of \$42,000, making the total contract price for the entire work \$156,000. The work was completed October 1, 1926, at a cost of \$159,058.15. The vacuum system of heating was installed. Cubic contents, 382,860 cubic feet. Cost per cubic foot, 41.5 cents.

George Truesdell School (formerly Brightwood Park School), located at the southeast corner of Ingraham and Ninth Streets NW.: By the act of March 3, 1925, \$140,000 was appropriated for the construction of an eight-room addition to the Brightwood Park School. Bids for the construction of this addition were received September 15, 1925. The lowest bid exceeded the amount of the appropriation, which was in amount \$155,000, submitted by Skinker and Garrett. It was, therefore, determined to omit certain portions of the building work as shown on the proposal plans, and to enter into a contract for the construction of the remainder. Contract was therefore executed October 30, 1925, with Skinker & Garrett for the construction of the addition, including mechanical equipment, with the exception of the portions of the work marked "Omitted" on the original drawings, namely, rooms for the library, the principal and teachers, the janitor, medical and dental clinics, the stairway and appurtenances thereto, and the entrance to proposed auditorium, in the sum of \$110,000. It was provided in said contract that in the event Congress should appropriate sufficient funds for and authorize the completion, under this contract, of the work marked "omitted" on the drawings, the Commissioners of the District of Columbia would have the right, prior to March 1, 1926, to direct the contractor to perform said work for the sum of \$44,000, or at the actual cost of labor and materials plus 15 per cent thereof. By the deficiency act of March 3, 1926, an additional amount of \$30,000 was appropriated for the construction of this building. A supplementary agreement was executed March 24, 1926, with Skinker & Garrett, for the construction of the portions of the work marked "omitted" on the original drawings, in the sum of \$44,000, making the total contract price for the entire work \$155,000. The work

was completed October 1, 1926, at a total cost of \$162,080.85. The vacuum system of heating was installed. Cubic contents, 382,860 cubic feet. Cost per cubic foot, 42 cents.

McKinley Technical High School, located on Second Street between R and T Streets NE.: By the deficiency act of June 7, 1924, \$5,000 was appropriated for the preparation of plans and specifications for a new school building for the McKinley Manual Training School. By the act of March 4, 1925, \$1,000,000 was appropriated for beginning the construction of new buildings for the McKinley Technical High School, and the commissioners were authorized to enter into contract or contracts for such buildings at a cost, exclusive of the treatment of the grounds, not to exceed \$2,250,000. By the act of March 2, 1927, an additional sum of \$1,000,000 was appropriated for continuing the construction of said buildings. Contract was executed June 2, 1926, with Parsons & Hyman, for the construction of three units, namely main building, auditorium, etc., gymnasium and power house, including plumbing, heating and ventilating, and electrical work, to be known as the McKinley Technical High School, in the sum of \$1,974,644. The contract time will expire June 1, 1928. The vacuum system of heating will be installed. The work to date has cost \$1,983,274.30. Cubic contents, 5,790,000 cubic feet. Cost per cubic foot 34+ cents. Contract was executed October 26, 1926, with the H. S. Hatton Construction Corporation, for the construction of reinforced-concrete retaining walls, etc., located on the west side of Second Street and north side of R Street, on the site of the McKinley Technical High School, in the sum of \$47,750. This work was completed April 1, 1927, at a total cost of \$51,407.12.

Contract was executed June 24, 1927, with the H. S. Hatton Construction Corporation, for the construction of additional reinforced-concrete retaining walls, etc., located on the west side of Second Street and north side of R Street, on the site of the McKinley Technical High School, in the sum of \$39,825. The contract time for this work will expire October 1, 1927.

Building construction started subsequent to July 1, 1926:

Addition to Hine Junior High School, located at Seventh and C Streets SE.: By the act of May 10, 1926, \$100,000 was appropriated for the construction of an addition to this building. Contract was executed September 7, 1926, with Skinker & Garrett, for the construction of the addition, including all mechanical equipment, plumbing, electrical, heating, and ventilating work, in the sum of \$96,819. The work was completed April 25, 1927, at a total cost of \$96,945. The vacuum system of heating was installed. Cubic contents, 321,500 cubic feet. Cost per cubic foot, 30+ cents.

Addition, etc., to District Jail Building, located at Nineteenth and B Streets SE.: By the deficiency act of July 3, 1926, \$275,000 was appropriated for the construction of an additional building at the District Jail and the rearrangement of the interior construction of the east wing of the present jail building, including equipment, to provide accommodations for not less than 200 additional prisoners. Contract was executed October 15, 1926, with George E. Wyne, for the construction of the additional building and the rearrangement of the interior of the east wing, including plumb-

ing, heating, ventilating, and electrical work, in the sum of \$265,740.00. The work was completed August 13, 1927, at a cost of \$266,113.61. A two-pipe steam heating system will be installed. Cubic contents, 544,400 cubic feet. Cost per cubic foot, 48+ cents.

Alterations to city refuse division stable, located between N and O, Ninth and Tenth Streets NW.: (Paid from appropriation "Collection and disposal of refuse, D. C., 1927.") Contract was executed October 26, 1926, with Hallinan & King, for the making of alterations in said stable, in the sum of \$1,840. The work was completed November 29, 1926, at the contract price. Contract was executed January 18, 1927, with the Kirwan Engineering Co., for installing a steam heating system and making alterations in boiler room at said stable, in the sum of \$7,550. The work was completed November 29, 1926, at the contract price.

Addition to the John Burroughs School, located on Monroe Street, between Eighteenth and Twentieth NW.: By the act of May 10, 1926, \$245,000 was appropriated for the construction of an eight-room addition, including a combined gymnasium and assembly hall, to the Burroughs School, and including the necessary remodeling of the present building. Contract was executed November 9, 1926, with John Ginechesi (Inc.), for the construction of the addition and the making of alterations in the old building, including plumbing, electrical, heating, and ventilating work, in the sum of \$188,835. The work will be completed about August 12, 1927, at a cost of \$188,914.91. The vacuum system of heating will be used in this building. Cubic contents, 750,000 cubic feet. Cost per cubic foot, 25+ cents.

Addition to fire department repair shop, located at Seventh Street and North Carolina Avenue SE.: By the act of May 10, 1926, \$11,935 was appropriated for repairs, alterations, and additions to the fire department repair shop. Contract was executed November 12, 1926, with R. R. Cunningham for the construction of an additional story, including plumbing work, in the sum of \$5,583. The work was completed March 15, 1927, at a cost of \$5,451. Cubic contents, 19,100 cubic feet. Cost per cubic foot, 29+ cents. Contract was executed December 14, 1926, with Charles T. Crockett, for the installation of heating and electrical systems for a portion of the repair shop, in the sum of \$3,740. The work was completed February 12, 1927, at the contract price.

Woodridge School, located at Carlton and Central Avenues NE.: By the act of May 10, 1926, \$160,000 was appropriated for the construction of an eight-room extensible building on the site at Carlton and Central Avenues NE, subsequently officially named the Woodridge School. Contract was executed November 23, 1926, with De-Cou & Davis, of Baltimore, Md., for the construction of an eight-room extensible building, including plumbing electrical, heating, and ventilating systems, in the sum of \$118,715. The work will be completed about August 10, 1927, at a cost of \$118,671. The direct-radiation gravity system of heating is being installed in this building. Cubic contents, 346,000 cubic feet. Cost per cubic foot 34+ cents.

Addition to the Bruce School, located at Kenyon Street and Sherman Avenue NW.: By the act of March 3, 1925, \$120,000 was appro-

priated for the construction of an eight-room addition to the Bruce School.

Contract was executed December 14, 1926, with Hugo Herfurth, jr., & H. Herfurth, jr. (Inc.), for the construction of said addition, including plumbing, electrical, heating, and ventilating systems, in the sum of \$100,150. The contract time will expire August 1, 1927. The cost of the work to date is within the contract price. A steam-heating system will be installed. Cubic contents, 310,200 cubic feet. Cost per cubic foot, 32+ cents.

Police Station No. 14, located at Albemarle and Forty-second Streets NW.: By the act of May 10, 1926, \$60,000 was appropriated for the purchase of a site and the erection of a building to be known as the fourteenth police precinct station house to replace the sub-police station at Tenleytown. Contract was executed January 7, 1927, with Arthur L. Smith & Co., for the construction of said station house, including plumbing, electrical, heating, and ventilating systems, in the sum of \$50,775. The work was completed May 28, 1927, at a cost of \$50,778.30. A steam heating system was installed. Cubic contents, 137,000 cubic feet. Cost per cubic foot, 37+ cents.

Addition to Langley Junior High School, located on T Street between First and Second NE.: By the act of May 10, 1926, \$100,000 was appropriated for the construction of an addition to the Langley Junior High School, including an assembly hall and gymnasium, and the commissioners were authorized to enter into contract or contracts for such addition at a cost not to exceed \$400,000. By the act of March 2, 1927, an additional sum of \$375,000 was appropriated for the completion of the construction. Contract was executed February 4, 1927, with the Charles H. Tompkins Co., for the construction of said addition to and making alterations in said building, including an assembly hall and gymnasium, and including plumbing, electrical, heating, and ventilating systems, in the sum of \$390,975. The contract time will expire January 15, 1928. The cost of the work to date is within the contract price. The vacuum system of heating will be installed in this building. Cubic contents, 1,055,000 cubic feet. Cost per cubic foot, 37+ cents.

Building for birds, located at National Zoological Park: By the act of May 10, 1926, \$49,000 was appropriated for the construction of a public exhibition building for birds, and the commissioners were authorized to enter into contract or contracts for the completion of said building in accordance with plans and specifications approved by the regents of the Smithsonian Institute at a cost not to exceed \$102,000. By the act of March 2, 1927, an additional appropriation of \$53,000 was made for the completion of said building. Bids were received March 8, 1927, for the construction of said building, but as the lowest bid exceeded the amount available in the appropriation, the bids were rejected. Changes in the plans were made, and new bids were received May 10, 1927. Contract was executed May 27, 1927, with Arthur L. Smith & Co. for the construction of the building, including plumbing, electrical, heating, and ventilating systems, in the sum of \$96,790. The contract time will expire January 1, 1928. The cost of the work to date is \$97,148.80. A steam-heating system will be installed. Cubic contents, 523,000 cubic feet. Cost per cubic foot, 18 cents.



Gallinger Municipal Hospital, located in reservation No. 13, east of Nineteenth and south of B Street SE.: By the act of May 10, 1926, \$300,000 was appropriated for continuing the construction of the domestic building and commencing the construction of an additional ward building of not less than 250 beds, including mechanical and other equipment, furniture, and furnishings, and the commissioners were authorized to enter into contract or contracts for the construction of said buildings, including all equipment, furniture, and furnishings, at a total cost not to exceed \$1,000,000, which should include any unexpended balances remaining of appropriations theretofore made for buildings at said hospital and the amount by said act appropriated. The act further provided that of said authorized total cost not less than \$75,000 should be available only for the furniture, furnishings, and equipment of said ward building. The balance remaining from former appropriations for buildings at said hospital was, on July 1, 1926, \$180,473.22. Contract was executed June 3, 1927, with George E. Wyne for continuing the construction of the domestic or service building and the construction of ward building No. 4, including mechanical equipment, in the sum of \$734,800. The contract time will expire May 1, 1929. The cost of the work to date is within the contract price. The vacuum system of heating will be installed in these buildings. Cubic contents, 1,345,700 cubic feet. Cost per cubic foot, 54+ cents.

Addition of gymnasium and assembly hall to Petworth School, located on Shepherd Street between Eighth Street and Georgia Avenue NW.: By the act of May 10, 1926, \$75,000 was appropriated for the construction of a combined gymnasium and assembly hall at the Petworth School in accordance with the original plans for the construction of said building. Contract was executed July 29, 1927, with Skinker & Garrett, for said construction work, including mechanical equipment, in the sum of \$38,945. The contract time will expire January 1, 1928. A steam heating system will be installed. Cubic contents, 194,000 cubic feet. Cost per cubic foot, 20+ cents.

Addition of gymnasium and assembly hall to the West School, located on Farragut between Thirteenth and Fourteenth Streets NW.: By the act of May 10, 1926, \$75,000 was appropriated for the construction of a combined gymnasium and assembly hall at the West School in accordance with the original plans for the construction of said building. Contract was executed July 26, 1927, with the H. S. Hatton Construction Corporation for said construction work, including mechanical equipment, in the sum of \$37,280. The contract time will expire January 1, 1928. A steam heating system will be installed. Cubic contents, 193,500 cubic feet. Cost per cubic foot, 19+ cents.

Addition to Smothers School Building, located between Forty-fourth, Forty-fifth, Clay, and Brook Streets NE.: By the act of May 10, 1926, \$85,000 was appropriated for the construction of a four-room addition to the Smothers School, including the necessary remodeling of the existing building. Contract was executed June 28, 1927, with Skinker & Garrett, for said construction work, including mechanical equipment, in the sum of \$41,340. The contract time will expire January 15, 1928. A steam heating system will be installed. Cubic contents, 169,000 cubic feet. Cost per cubic foot, 24+ cents.

Besides the preparation of plans and specifications for the above-mentioned buildings, plans and specifications for over 50 other pieces of work, such as alterations and repairs to buildings, heating, plumbing, and electrical work, for the various buildings, have been prepared in this office, the contract prices therefor amounting to \$220,031.

The contracts entered into by this office during the fiscal year beginning July 1, 1926, and ending June 30, 1927, amounted to a total of \$2,400,674.

District Training School: The following work was performed at the District Training School near Laurel, Md., during the fiscal year:

The construction of a power plant and laundry combined. The power plant has been equipped, and supplies steam to heat the three dormitories, hot water for domestic purposes and steam for the kitchen.

The laying of underground steam and return lines throughout the property.

The driving of a 136-foot well.

The construction and equipment of a pump house for pumping water to the supply tank.

The erection of a 50,000-gallon steel water tank on a 75-foot steel tower, from which water for all purposes is supplied the institution.

The laying of underground water lines throughout the property.

The installation of complete heating, plumbing, and electric systems.

The extension of electric power lines from the Annapolis & Chesapeake Bay Power Co.'s power lines, to serve the three dormitories, the laundry and power plant building, the well house, and well pump motor.

The installation of refrigerating and ice-making equipment in dormitory building No. 2, with a capacity for making 750 pounds of ice per day and for cooling two large storage boxes and one short-order box.

Some progress has been made in the development of school grounds. Small allotments have been allowed by the school board for grading purposes and surfacing of playgrounds, but in one case only has any real attempt been made to adequately treat the surrounding property of a school building. This building is the health school on Thirteenth Street near Allison, where on the south front a simple, formal garden with stone walks and flower beds has been laid out and a sun dial placed in the middle of the garden. It is hoped that before next summer flower beds, shrubbery, hedges, etc., may be installed so as to more fully develop the beginnings made this year. Studies have been made for the planting of the grounds of the more recent school buildings, and with more adequate appropriation these plans will be developed. It is the aim of this office to make the approaches and surroundings of the schools as attractive as possible.

The question of maintaining a large number of school properties is one which the Board of Education must still solve. Adequate care of lawns and shrubbery must be provided to successfully and satisfactorily carry on the work of school-ground development.

Advice as to the more suitable plants to use for the purpose is also needed, and it is hoped that in the near future provision may be made for an assistant in the office who can supply such advice.

The office needs library equipment. At the present time, aside from a few books which have been bought out of our contingent fund and a few magazines, the office is without the necessary books which should be provided for an organization of this kind. Some books are borrowed from the Library of Congress, but frequently books asked for are not available. It is my opinion that better work can be accomplished and time and money saved with an adequate library available for the draftsmen.

ALBERT L. HARRIS,  
*Municipal Architect.*

To the ASSISTANT ENGINEER COMMISSIONER.

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## REPORT OF CONSTRUCTING ENGINEER, DISTRICT OF COLUMBIA, WORKHOUSE AND REFORMATORY

LORTON, VA., *August 8, 1927.*

SIR: I have the honor to submit herewith report of the construction and engineering operations at the workhouse and reformatory for fiscal year ending June 30, 1927.

### REFORMATORY BUILDINGS

*Status of buildings June 30, 1927.*—Twenty permanent buildings completed or under construction as follows: Six dormitories complete and 50 per cent equipped, two of which are in service; 5 shops, all in service; 1 mess hall, complete except interior equipment; 1 disciplinary dormitory with cells, complete and ready for occupancy; 1 disciplinary dormitory without cells, complete, occupied; 1 boiler house, being remodeled for permanent boiler installation; 1 washhouse, ready for interior equipment; 4 dormitories on north side, foundations in place and brickwork average 40 per cent complete.

*Work done during fiscal year.*—Three dormitories, concrete floors and plumbing fixtures put in; 2 dormitories, brickwork and roof completed; 1 dormitory, brickwork 25 per cent complete. Arcade walk and roof connecting dormitories on south side completed; 1 mess hall, roof completed, floor laid, painting completed, oven installed, and all necessary steam and water pipes placed; 1 clothing shop, plumbing and heating, piping installed, building equipped with work tables, etc.; 1 auto-tag shop, floor concrete placed, interior painted, steam and water pipes installed and work under way installing machinery; 1 foundry building (not included in main group), foundation installed and brickwork sill high; 1 canning factory building (not included in main group), completed and part of equipment installed. Grading around permanent buildings was nearly completed.

### WORKHOUSE BUILDINGS

*Status of buildings June 30, 1927.*—Five permanent buildings complete or under construction as follows:

Two dormitories, capacity 100 men each, completed and occupied; 1 dormitory, ready for occupancy; 1 isolation building (to contain

38 cells), brickwork 60 per cent complete, cell foundations complete; 1 dormitory, brickwork 20 per cent complete.

With a normal population it should be possible to house all inmates in permanent dormitories during the coming winter.

*Work done during fiscal year.*—One dormitory roofed and interior equipped, completed and occupied about November 30; 1 dormitory completed from foundation line and made practically ready for occupancy; 1 dormitory foundation and 20 per cent brickwork completed; 1 isolation building containing 38 cells, 60 per cent complete as described above.

Considerable grading was done on north side of group.

#### INDUSTRIAL RAILROAD

At the close of the fiscal year work was near completion on the last section of railroad to connect with main line near Pohick station. Grading was completed over practically the entire line and track laid to a point about 1,200 feet from the Richmond, Fredericksburg & Potomac Railroad.

In view of the rough condition of the land at this point and in order to provide suitable switching connection and switching yards, approximately  $1\frac{1}{2}$  acres of land will be required to make room for this connection. This connection was worked out in cooperation with the railroad company's engineer. Under favorable conditions it should be possible to complete this road in a very short time.

#### INDUSTRIES

*Brick plant.*—During the fiscal year 4,283,000 bricks were made. The clay storage shed was further enlarged, extending to east, and the old section completely rebuilt, so as to provide sufficient storage room for about 60 days' operation. With this shed filled in the fall of the year it should be possible to operate continuously during the winter months, as the clay brought in during bad winter weather requires a much longer time for proper drying. This addition to the plant, enabling more continuous operation during bad weather, should materially increase the output during the next year. I again wish to stress the need of rebuilding the old kilns and constructing several new ones if production is to be further increased.

*Automobile license-plate shop.*—Shop building No. 22 of the main group at the reformatory was equipped and machinery installed for the making of automobile license plates. At the close of the fiscal year most of the machinery was received and installation under way. The best of equipment is being used in this plant and it should be possible to manufacture better license plates than ever used before by the District of Columbia and have same delivered on time.

*Canning factory.*—A building was constructed on the industrial railroad just outside the group of permanent buildings at the reformatory for a canning factory, and most of the equipment was installed on June 30. With this plant in operation it should be possible to use practically all the farm products, which should result in considerable saving of food supplies.

*Foundry.*—Foundation was placed and brick work carried to sill high on a building near the canning factory to be used as a foundry. At this place it is planned to use all the waste and scrap iron from the various District departments and, with the addition of a small quantity of pig iron, convert same into new castings, such as grate bars, boiler fronts, and many other castings for the District's needs. While this foundry has not been pushed as rapidly as the other two new industries mentioned, it should be in complete operation within a comparative short time.

#### HEATING PLANT, UTILITIES, ETC.

With the establishment of additional industries our central power plant is being taxed almost to its maximum capacity; it is therefore very essential that a careful study be made of the power and lighting requirements throughout the entire institution so as to distribute the load more evenly over the entire 24-hour period. In this connection I wish to again emphasize the need for operating motors in connection with pumping water, making ice, etc., during the night or at some time when the industries are not drawing heavily on the power plant. Some tests and studies have been made regarding the economy to the District of Columbia in purchasing electric current for power and lighting from an outside corporation. It is my suggestion in this connection that our power plant be put in best possible working condition to produce a higher efficiency before final tests are made to settle this question.

Improvements to our water system are badly needed to provide a better grade of water and to insure a greater storage capacity, so that the pumps need not be operated during the peak-load period. Additional storage capacity in the way of another storage tank should be provided without delay.

With the installation of heating boilers recently obtained from Fort Humphreys, I recommend the use of a standard shaking grate of the same design for all these boilers, so as to produce better results from the coal burned in heating and to simplify our stock of replacement parts. Meters should also be provided on our power and water service lines, also in our heating plant, so as to provide a means of making tests to determine the efficiency of the various plants. By this means it should be possible to save considerable coal in the future.

In consideration of the increase in engineering activities, especially in connection with the establishment of industries, the further extension of utilities and the devising of ways and means for the efficient operation of the power plant, water system, etc., in addition to the construction work in connection with permanent buildings, I feel that more attention and assistance should be given this branch of work, so as to provide a smooth-working, efficient organization that can get the desired result and effect greater economy in the expenditure of funds for the institution.

Respectfully submitted.

HERBERT R. HAAR,  
*Constructing Engineer.*

To the MUNICIPAL ARCHITECT.

## REPORT OF THE SUPERINTENDENT OF REPAIRS

WASHINGTON, D. C., *August 17, 1927.*

SIR: I have the honor to submit my annual report showing the operations of the repair shop for the fiscal year ended June 30, 1927, as follows:

There was appropriated by the act of May 10, 1926, for repairs and improvements to school buildings and grounds and for repairing and renewing heating, plumbing, and ventilating apparatus, and installation of sanitary drinking fountains in buildings not supplied with same, and maintenance of motor trucks, \$550,000, which was made immediately available.

There was expended during the fiscal year \$550,000. In order to do some emergency work which was absolutely necessary, we were compelled to deplete our stock by \$51,666.50 and to use deposits made to the credit of the miscellaneous trust funds to the amount of \$29.32. A balance of \$1,614.53 was reserved in the appropriation with which to meet any outstanding bills that might come in on account of excess delivery of materials.

The installation of modern lighting systems has been completed with the exception of two schools.

The following comprise several extraordinary items paid out of the school appropriation for work done by contract. Heating plants in 13 schools, namely, the Mott, Jones, Eckington, Wormley, Morse, Brent, Garrison, Buchanan, Fillmore, Phillips, Polk, Slater, and Wilson, amounting to \$110,000. Boiler work at the Brookland School, amounting to \$1,694. Repairs to the water filter of the swimming pool at the Dunbar High School, amounting to \$340. The erection of a partition at the West School, amounting to \$228. Carving of name in woodwork over entrance of the Oyster School, amounting to \$30. Carving of names in stonework of several schools, amounting to \$136.50. The furnishing in place of benches, pedestal, and sundial at the Health School, amounting to \$131.53.

The act of May 10, 1926, appropriated for repairs and improvements to engine houses and grounds, \$28,000. All of this amount was expended except \$198.92.

Out of the above-named appropriation \$2,800 was expended for the installation of an electric elevator at the fire department repair shop.

The act of May 10, 1927, appropriated for repairs and improvements to police stations and station grounds \$9,000, all of which was expended except \$215.94.

The act of May 10, 1926, appropriated for repairs and alterations to the police court building \$2,500, all of which was expended except \$411.34.

The act of May 10, 1926, appropriated for the installation of improved toilet and bathing facilities in houses of the fire department, including necessary alterations, \$20,000. All of this appropriation was expended except \$15.15.

The act of May 10, 1926, appropriated for a new heating plant to replace the worn-out plant at the District repair shop \$1,500, all of which was expended except \$217.24.

The foregoing amounts represent the actual cost of 6,503 separate jobs. In addition to the work provided for by the above-named appropriations, which were under the control of the superintendent of repairs, the repair shop executed work to the amount of \$46,168.52 provided for by various appropriations controlled by other departments of the District government.

The shop inspected and repaired steam boilers in over 100 buildings owned by the District.

The organization of the repair shop has been changed a little since the previous year. The shop has a force of seven annual employees, consisting of the superintendent, an overseer, an assistant superintendent, and four clerks, and a per diem force of from 150 to 250 employees representing the various trades. The number of the last-named force increases and decreases in accordance with the seasons of the year and the amount of work on hand.

Respectfully submitted.

HENRY STOREY,  
*Superintendent of Repairs.*

To the MUNICIPAL ARCHITECT.

#### REPORT OF THE SUPERINTENDENT, MUNICIPAL GARAGE

AUGUST 23, 1927.

SIR: I have the honor to submit the following report on the municipal garage for the fiscal year ended June 30, 1927.

Fifty automobiles were maintained and kept in running order for the various departments of the District government, as follows:

Automobiles		Automobiles	
Building inspector's office-----	2	Highways division-----	2
Plumbing inspector's office-----	1	Playgrounds-----	1
Assessor's office-----	3	Electrical department-----	7
Corporation counsel-----	1	Community centers-----	1
Central garage-----	11	Health department-----	2
Director of traffic-----	1	Board of public welfare-----	3
Municipal architect-----	2	City refuse division-----	3
Surveyor-----	5	Weights and measures-----	5

The duties of our labor and mechanical force were repairing automobiles, carrying mail from the city post office to the District Building, driving for the departments which were without automobiles or drivers allotted to their respective offices, greasing, oiling, washing cars at night and also acting as watchmen. In connection with this garage we have an automobile repair shop located at Second and Bryant Streets where all repair work is done for the water department, sewer department, District of Columbia repair shop, board of public welfare, and others.

The garage was kept open at all times, night and day, for urgent and necessary transportation.

Operating cost for the maintenance of 50 automobiles, including gasoline, oil, tires, labor, and miscellaneous supplies, amounted to \$21,203.48, or an average of \$424.07 for each car, or \$0.0492 per mile.

The cost of repair parts used in the cars was \$3,452.98, or an average of \$69.06 for each car, or \$0.0132 per mile. Mileage of the 50 automobiles totaled 311,184 miles, or 6,223 per car.

This garage was built in 1917 and was designed for 25 automobiles with sufficient floor space for the workmen to wash, oil, grease, and repair cars without loss of time required for the shifting of cars to more accessible working space as is now the case.

Each year additional automobiles have been added to the garage until at the present time we have 50 machines that we are maintaining, 35 of these remain in the garage at night and 15 are cared for at night by the men to whom they are assigned. It would be impossible to house all of them in the garage at one time.

It is not good policy to house District cars outside of District garages, for when they are not stored with us at night they are not insured of the proper oiling and greasing that is regularly done in the garage by the night shift. Very often they are not properly protected from the weather and loss of parts and minor adjustments are not brought to our attention as promptly as they should be.

C. N. EMMONS,

*Superintendent Municipal Garage.*

To the SUPERINTENDENT DISTRICT BUILDING.

#### REPORT OF INSPECTOR OF STEAM BOILERS

WASHINGTON, D. C., *August 12, 1927.*

GENTLEMEN: I have the honor to submit through John W. Oehmann, inspector of buildings, District of Columbia, the following report for the fiscal year ending June 30, 1927, together with fees received and expenses incurred:

Boilers inspected.....	449
Boilers inspected for District of Columbia (no fee).....	30
Cases of deposit.....	40
Cases of defective setting.....	15
Cases of steam gauge.....	12
Cases of defective tubes.....	40
Cases of pressure reduced.....	2
Cases of boilers condemned.....	5
Total amount received for above.....	\$2, 095
Total amount expended.....	380
Compensation for inspector.....	1, 715

Respectfully submitted.

E. F. VERMILLION,

*Inspector of Steam Boilers.*

To the COMMISSIONERS OF THE DISTRICT OF COLUMBIA.

#### REPORT OF THE BOARD OF EXAMINERS OF STEAM ENGINEERS OF THE DISTRICT OF COLUMBIA

WASHINGTON, D. C., *August 5, 1927.*

GENTLEMEN: The board of examiners of steam engineers has the honor to submit to you report for the fiscal year ending June 30, 1927.

The following table shows the work as it progressed during each month:



	Meet- ings held	Appli- cants exam- ined	Appli- cants ap- proved	Appli- cants not compe- tent	First class	Second class	Third class	Gas- fired press ma- chine	Special class	Inter- nal com- bus- tion	Elec- tric power	Stan- ley steam- er
1926												
July.....	5	27	12	15	-----	0	4	1	4	3	0	-----
August.....	4	32	17	15	-----	3	4	0	8	2	0	-----
September.....	4	21	8	13	-----	4	1	1	0	1	1	-----
October.....	5	20	10	10	-----	2	2	1	4	1	0	-----
November.....	4	21	11	10	-----	1	4	0	3	1	2	-----
December.....	5	7	3	4	-----	1	1	0	1	0	0	-----
1927												
January.....	4	23	10	13	-----	0	0	6	3	1	0	-----
February.....	4	20	10	10	-----	2	2	1	3	2	0	-----
March.....	4	25	14	11	2	1	2	3	2	3	1	-----
April.....	5	11	8	3	-----	0	2	1	0	5	0	-----
May.....	4	21	15	6	-----	1	2	0	5	7	0	-----
June.....	4	14	9	5	-----	0	1	3	1	3	0	1
Total.....	52	242	127	115	2	15	25	17	34	29	4	1

E. F. VERMILLION,  
*Inspector of Steam Boilers.*

H. BOESCH,  
*Secretary.*

T. S. TINCHER,  
*Member.*

To the COMMISSIONERS OF THE DISTRICT OF COLUMBIA.

#### REPORT OF ASSISTANT SUPERINTENDENT OF THE DISTRICT BUILDING

WASHINGTON, August 22, 1927.

GENTLEMEN: I have the honor to submit the following report on the care and maintenance of the District Building, including the operation of its various functions, for the fiscal year ended June 30, 1927.

To partially overcome a condition caused by inadequate working space, numerous offices of greatly crowded departments in the District Building were reassigned, entailing upon our small working force the task of making many alterations and installations which included building partitions, moving partitions, cutting doorways, making door frames, making cashier cages, refinishing walls, floors, wood trim, etc.

Our appropriation is drawn upon annually for many alterations and installations of which we are not advised previous to the forwarding of our estimates. It is respectfully requested that departments in the District Building wishing alterations costing in excess of \$25 be instructed to forward to this department a draft of such alterations, thereby enabling us to incorporate in our estimates such items as may be necessary to cover additional labor and material.

Our present working forces are small, both the mechanical and laboring; the use of either or both for other than our regular care of the District Building results in uncompleted repairs, refinishing, and cleaning, all of which go to make an untidy building. Our cleaning force is called upon to perform many duties which should

not be imposed upon this department, especially by those departments having messengers. It is earnestly requested that departments be instructed to refrain from requesting of this department any duty not in line with the regular care and upkeep of the building proper.

#### POWER PLANT

The personnel of this department did all necessary repair work to the mechanical equipment which meant a substantial saving; these employees also made repairs to plumbing throughout the building, made extensive repairs to our Fairbanks track scales and track leading from the coal vaults to the boiler; half of our high-pressure steam main was recovered, and numerous repairs made to pumps and to equipment in the boiler and engine rooms. There were 13,120 pounds of grate bars replaced at a cost of \$713.37 and the replacement of piston rings, and suction seats for boiler feed pumps, new parts for Knowles pump, repairs to commutators and generators cost \$246.79.

There has been insufficient pressure on the flush valves, especially on the fifth floor. To improve this condition we contemplate feeding direct from the high-pressure water line. The tanks will be cut out and the high-pressure water connected with the tank feed line in the attic of the District Building. The necessary labor will be performed by the power plant force, the cost will be material only, which will be approximately \$100.

There was consumed 2,206.9 tons of coal ranging in price from \$5.38 to \$6.48 per ton, the total cost being \$12,579.73. The percentage of ash was 14.47 as compared with 15.6 per cent for the preceding year.

The heating system was in operation 4,920 hours, the ventilating system 1,280 hours, the pneumatic-tube system 2,178 hours, and the water-cooling system 2,666 hours.

There were generated 533,840 kilowatt hours, of which 414,830 were used for lighting, 50,600 kilowatt hours for elevators, and 68,410 kilowatt hours for motors.

#### ELECTRICAL DEPARTMENT

There were six passenger elevators and one sidewalk freight elevator kept in operation by this department in addition to the care of all lights, and partial care of electric fans, and electric calculating machines, motors, batteries, plugs, fuses, etc.

Numerous changes in fixtures were made to improve the lighting conditions for various departments.

Repairing worn parts of our elevators and the elevator signal system is almost continuous, and the cost of renewal parts has been a large item of expense. In addition to many small and many expensive parts purchased for the elevators, all main hoist cables, on the passenger elevators, were reshackled at a cost of \$87.90.

Attention is again called to the worn condition of the six passenger elevators in the District Building.

## WOODWORK AND PAINT SHOP

This department has taken care of all repairs in the District Building, including repairs to doors, doorstops, doorchecks, windows, window shades, Venetian blinds, locks, and furniture; replacement of broken windows, of weather strips, and keys. In addition to these there were many alterations which were made necessary by the rearrangement of offices throughout the building.

Walls and ceilings were painted in many offices and in several corridors at a total cost of \$2,939.06. There were 34 old window shades replaced with new ones, at a cost of \$91.23; there were two tables built for the use of the license bureau, at a cost of \$51.48; a doorway cut in the detective bureau, at a cost of \$51.14; a doorway cut in the office of the Public Utilities Commission, at a cost of \$94.59 (difference in cost due to thickness of walls); plastering at a cost of \$84; replacement of glass in windows of rooms Nos. 22 and 24, which were converted into offices, at a cost of \$72.83; it was also necessary to cover the concrete floor of one of these offices with linoleum at a cost of \$134.30.

## BLUE-PRINT AND PHOTOGRAPH SHOP

There were 163,114 square feet of blue printing completed for various departments of the District government, at a cost of \$3,877.38, and 378 photographs, 176 photostats, 17 maps mounted, and 51 prints made from films at a cost of \$321.71.

LAYSON E. ATKINS,

*Major, Corps of Engineers, U. S. Army, Superintendent.*

E. P. BROOKE,

*Assistant Superintendent, in charge District Building.*

To the COMMISSIONERS OF THE DISTRICT OF COLUMBIA.

REPORT OF THE BOARD FOR THE CONDEMNATION OF  
INSANITARY BUILDINGS

GENTLEMEN: We have the honor to submit the following report for the fiscal year ended June 30, 1927, buildings on which action was taken in response to notices served under the act creating the board for the condemnation of insanitary buildings during the year ended June 30, 1927:

*Report for year ended June 30, 1927*

	Exam- ined	Con- demned	Razed	Repaired	No action taken	Pending	Value of repairs
Buildings in streets.....	415	185	173	155	75	12	\$77,377
Buildings in alleys.....	234	60	45	56	58	15	16,100
Total.....	649	245	218	211	133	27	93,477

not be imposed upon this department, especially by those departments having messengers. It is earnestly requested that departments be instructed to refrain from requesting of this department any duty not in line with the regular care and upkeep of the building proper.

#### POWER PLANT

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To the COMMISSIONERS OF THE DISTRICT OF COLUMBIA.

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Total.....	649	245	218	211	133	27	93,477

*Buildings acted upon since creation of board to June 30, 1927*

<b>Buildings in streets:</b>	
Examined .....	5,940
Condemned .....	3,239
Razed .....	2,390
Repaired .....	2,443
No action taken .....	1,007
Pending .....	12
Value of repairs .....	\$470,619
<b>Buildings in alleys:</b>	
Examined .....	5,778
Condemned .....	2,330
Razed .....	1,170
Repaired .....	7,693
No action taken .....	3,292
Pending .....	15
Value of repairs .....	\$80,305
Number of buildings taken down by board during year ended June 30, 1927 .....	245
Number of buildings condemned during year ended June 30, 1927, and not taken down owing to lack of funds .....	20
Number of board meetings held during the year ended June 30, 1927 .....	14
Number of 20-day preliminary notices prepared and served .....	175
Number of condemnation orders served during year ended June 30, 1927 .....	125
Number of condemnation cards affixed to buildings during year ended June 30, 1927 .....	115
Number of miscellaneous visits made in connection with the examination, service of various notices, repairs being made to buildings, the demolishing and removal of buildings condemned by the board .....	2,255
Number of cases in court .....	2
Estimated number of people required to secure other living quarters through action of the board .....	980
Number of occupants of dilapidated and insanitary buildings benefited by repairs to buildings through action of the board during the year ending June 30, 1927 .....	2,500
Estimated value of repairs made to dilapidated and insanitary buildings by action of the board from June 1, 1917, to June 30, 1927 .....	\$550,924

The cases pending in the court of appeals have been decided adverse to the District of Columbia. The court of appeals has handed down opinions in cases of the District of Columbia *v.* Franklin P. Nash et al., and the District of Columbia *v.* Charlotte E. Lockwood et al., involving the construction of the alley dwelling law of September 25, 1914.

W. E. R. COVELL,  
*Major, Corps of Engineers, U. S. Army,*  
*Assistant to the Engineer Commissioner,*  
*District of Columbia.*

W. C. FOWLER, M. D.,  
*Health Officer, District of Columbia.*

JOHN W. OEHMANN,  
*Inspector of Buildings, District of Columbia.*

A. S. J. ATKINSON,  
*Inspector for the Board.*  
*Board for the Condemnation of Insanitary*  
*Buildings of the District of Columbia.*

To the COMMISSIONERS OF THE DISTRICT OF COLUMBIA.





